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ABSTRACT

Seminars designed as a guide for teachers who meet together regularly while teaching the intermediate grade course Man: A Course of Study are presented in this book. The seminar series provides a framework for the course itself, including opportunities for teachers to explore classroom concepts and materials and offering a structure for examining educational issues in terms of the learner, the teacher, and materials. Objectives of the forum are to provide for: 1) considerations of the relationship between discipline content and concepts and the process of learning and teaching; 2) the interplay between developments in the classroom and the education of teachers; 3) a continuous and deepening sense of teachers as colleagues; and 4) the possibility of professional identification for teachers as the basis for participation in decisions about education. A variety of perspectives offered in the twenty seminars are intended to be suggestive rather than prescriptive, and are applicable to other courses where process education is important. Although seminar topics were varied, each one focused upon two uniquely human processes---symbolic learning and education. Related documents are ED 045 461, ED 049 963, and SO 002 582. (Author/SJM)

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Man: A Course of Study

Seminars for Teachers

Man: A Course of Study
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SEMINARS FOR TEACHERS

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When, for example, we read in Aristotle that _philia,_ friendship among citizens, is one of the fundamental requirements for the well being of the City, we tend to think he was speaking of no more than the absence of factions and civil war within it. But for the Greeks the essence of friendship consisted in discourse. They held that only the constant interchange of talk united citizens in a _polis_. In discourse the political importance of friendship and the humanness peculiar to it were made manifest. This converse (in contrast to the intimate talk in which individuals talk about themselves), permeated though it may be by pleasure in the friends' presence, is concerned with the common world, which remains 'inhuman' in a very literal sense unless it is constantly talked about by human beings. For the world is not humane just because it is made by human beings, and it does not become humane just because the human voice sounds in it, but only when it has become the object of discourse. However much we are affected by the things of the world, however deeply they may stir and stimulate us, they become human for us only when we can discuss them with our fellows. What ever cannot become the object of discourse--the truly sublime, the truly horrible or the uncanny--may find a human voice through which to sound into the world, but it is not exactly human. We humanize what is going on in the world and in ourselves only by speaking of it, and in the course of speaking of it we learn to be human.

--Hannah Arendt, _Men in Dark Times_

INTRODUCTION

Man: A Course of Study was developed by persons with widely diverse interests, abilities and points of view. Scholars and teachers, biologists and anthropologists, artists and researchers, children and adults have all made important contributions, separately and collaboratively. The diversity that contributes to the richness of the course is reflected in the series of seminars to be used with it. The seminars in this book are designed as a guide for teachers who meet together regularly while they are teaching Man: A Course of Study. Like the course itself, the seminars employ a variety of perspectives.

The seminar series is built around two structures. First is the framework of the course itself. Within this framework each seminar includes opportunity for teachers to explore some of the concepts and materials they will use in the classroom. There is no attempt to cover all the materials and activities, because the teachers' guides assist in daily planning. Seminars focus instead on major concepts and the problems and opportunities they present to both children and adults.

The second framework of the series--the one made explicit in the seminar titles--focuses on issues of learning and teaching. The teaching of concepts and materials of Man: A Course of Study provides teachers with a laboratory experience for the study of learning and teaching processes. Within this second framework participants look at education in terms of the learner, the teacher and the materials (subject, concepts, activities, etc.). In addition, all three are viewed in the context of the social nature of the education enterprise. Education is a social enterprise not only because it occurs in groups, but also because its goals and processes are defined by society and explicitly or implicitly reflect the emphasis, goals and strains of the society.

Each seminar group will have to decide for itself how the seminars can be most helpful. Some issues will be of only peripheral interest to some groups. Others may require deeper exploration than suggested. The seminar leader and participants should consider carefully their own needs, keeping in mind that the greater the intellectual effort, the greater the likelihood of personal satisfaction for teachers and for enrichment in the classroom.

Even though the seminar series is tied closely to the teaching of Man: A Course of Study, the questions raised and perspectives employed may be interesting to other professionals in the educational community. It has been suggested in certain seminars that principals, coordinators, psychologists, other teachers, parents and students join the seminar group.

Following are the major goals of the seminar series. Groups will vary, of course, in which of the objectives they emphasize and in the way they attempt to achieve them, but the success of any seminar group depends on the interaction of colleagues.

(1) To provide a forum for considering the relationship between content and concepts of a discipline and the process of learning and teaching.

Social studies education today is far more than the simple transmission of the 'events' of history and the 'facts' of geography. New directions in social studies emphasize the relationship between concepts of a discipline and modes of learning. The concepts that organize the study of humans are particularly appropriate for organizing the study of what goes on in school--the relationship between learning and schools, the differences between intuitive and analytic thinking, the place of experience, and of contrast and comparison in learning.

(2) To provide for the interplay between the developments in the classroom and the education of teachers.

The strongest reason for mastering the new materials in the seminars is the teacher's awareness of students' needs in the classroom. Involved in an ever-changing and demanding classroom situation, teachers often feel that conceptual issues are unimportant--until questions arise in the classroom whose answers require conceptual clarity. The classroom thus serves as a continuing source of data for the seminars, a source of data that becomes an integral part of the program when it is shared, explored, developed and valued.

The seminar meetings will benefit from the continuing interaction of classroom and seminar experiences. Some seminars focus specifically on children's classroom work or on observation and interviews with children. Others, by including films of children in classrooms, emphasize the relationship between the classroom experiences and the issues in the course and in the seminars. Most seminars include questions which are not directly related to course materials or concepts, but give teachers opportunities to consider broader issues. Thus the seminar series provides an opportunity for discussing Man's humanness and at the same time considering ways of learning and teaching about it.

(3) To provide for a continuous and deepening sense of teachers as colleagues.

The alienation of the individual from his work, considered characteristic of modern societies, has been attributed to the mechanization and automation of tasks. These factors are important where highly specialized workers fulfill individualized functions, but they may also affect occupations in which people work in a common effort but in isolation from one another. In these cases, social interaction is usually based upon proximity or shared outside interests. A sense of membership in a colleague group comes from quite another relationship; it is most characteristic of those occupations in which the common interest in work absorbs more of an individual's interests than the specific task he may be accomplishing. At once a cause and a consequence of colleague relationships is a broadened view of the task itself and a deepened satisfaction in the work.

The tasks of education are broad enough to provide a basis for such relationships, and the responsibilities are critical enough for us to seek the most productive relationships possible among those committed to the tasks. The seminar series provides time for the development of colleague relationships and deals with questions that focus attention on the larger dimensions of the teacher's role.

(4) To provide for the possibility of professional identification for teachers that can be the basis for participation in decisions about education.

As institutions develop and grow, much of their effort and activity is necessarily directed toward maintaining themselves, protecting their functions and increasing their power in relation to other institutions. The danger here is that in the process institutions may lose sight of their primary goals. (In education, one danger is a shift in focus from the classroom--the human group of teachers and children--toward the larger administrative needs of a school system.) In the long run, the degree to which an institution continues to serve its major objectives may depend on the emergence of smaller groups within the larger system that are effectively committed to the institution's primary goals. Sharing common tasks and finding new ways of identifying with one another may provide the basis of power for teachers, those who implement educational processes, to share in making decisions concerning what education shall be.

Anita Mishler

Director of Teacher Education

Seminar 1: On Learning, or, What Is School For?

> The single most characteristic thing about human beings is that they learn. Learning is so deeply ingrained in man that it is almost involuntary, and thoughtful students of human behavior have even speculated that our specialization as a species is a specialization for learning. For, by comparison with organisms lower in the animal kingdom, we are ill equipped with prepared reflex mechanisms. As William James put it decades ago, even our instinctive behavior occurs only once, thereafter being modified by experience.
>
> -- Jerome S. Bruner, Toward a Theory of Instruction

Central to the design of Man: A Course of Study is the assumption that one of the ways man becomes human is through the process of education. Infant plasticity and prolonged immaturity provide us as humans with the opportunity to shape the development of our offspring, and in this sense "humanness" is a continuous human invention. As teachers we are participants in the process of humanization, and society holds us responsible for the consequences of our work. In this introductory seminar we will consider some contrasting definitions of the goals of formal education and explore ways in which the content of Man: A Course of Study can lead to new insights into the process of education.

***Film:**	**"At the Winter Sea-Ice Camp," Part I**
***Teacher Education Film:**	**"Making Life Ropes"**
Booklets:	**Songs and Stories of the Netsilik Eskimos** **This World We Know**
Record:	**"Words Rise Up": Songs My Mother Taught Me**
Readings:	**Jerome S. Bruner, "What the School Is"** **John Dewey, "The Essentials of Curriculum"** **Lawrence S. Kubie, "The Next Goal of Education"** **B. F. Skinner, "Education as the Acquisition of Behavior"**

*Films should be set up on two projectors with two screens to run simultaneously.

1. Man: A Course of Study is organized around three questions:

    What is human about human beings?
    How did (do) they get that way?
    How can they be made more so?

    Keeping in mind these questions, watch the simultaneous showing of "At the Winter Sea-Ice Camp," Part I, and "Making Life Ropes." Then listen to "Songs My Mother Taught Me." Separate into small groups and discuss:

    What do the film and the record reveal about the humanity of the Netsilik?
    How do Netsilik children learn the skills and values of their culture?
    Why is there no need for school as we know it in Netsilik society?
    Why is there a need for school in ours?
    What aspects of humanness does formal schooling emphasize?

2. Reassemble as a group and list on blackboard the purposes of schooling that emerged from the previous discussions. Then redivide into groups of four and read the four selections from Bruner, Dewey, Kubie and Skinner. With each person taking a different author debate the various points of view, considering the following issues in particular:

    How do Bruner and Dewey differ in their view of the function of school? Wherein do they agree?
    How do Skinner and Kubie differ on the issue of freedom vs. control? What assumptions regarding the function of school underlie the arguments of each?
    Which authors view school as a socializing influence? Which are more concerned with individual development?
    How would Bruner criticize Kubie's views or vice versa? Where would Dewey take issue with Skinner or vice versa?
    Which view of education do you find to be most compatible with your own views? Which is most alien?

Optional: The most dramatically inclined or least inhibited of workshop participants might stage a mock dialogue between any two of the authors discussed.

WHAT THE SCHOOL IS*

Jerome S. Bruner

The school is an entry into the life of the mind. It is, to be sure, life itself and not merely a preparation for living. But it is a special form of living, one carefully devised for making the most of those plastic years that characterize the development of _homo sapiens_ and distinguish our species from all others. School should provide more than a continuity with the broader community or with everyday experience. It is primarily the special community where one experiences discovery by the use of intelligence, where one leaps into new and unimagined realms of experience, experience that is discontinuous with what went before. A child recognizes this when he first understands what a poem is, or what beauty and simplicity inhere in the idea of the conservation theorems, or what measure is universally applicable. If there is one continuity to be singled out, it is the slow converting of the child's artistic sense of the omnipotence of thought into the realistic confidence in the use of thought that characterizes the effective man.

In insisting upon the continuity of the school with the community on the one side and the family on the other, John Dewey overlooked the special function of education as an opener of new perspectives. If the school were merely a transition zone from the intimacy of the family to the life of the community, it would be a way of life easily enough arranged. In the educational systems of primitive societies, there almost always comes a point, usually at puberty, where there is a sharp change in the life of the boy, marked by a _rite de passage_ that establishes a boundary between childhood ways and the ways of the adolescent.

It would be romantic nonsense to pattern our practices upon those found in preliterate societies. I would only ask that we attend to one parallel: education must not confuse the child with the adult and must recognize that the transition to adulthood involves an introduction to new realms of experience, the discovery and exploration of new mysteries, the gaining of new powers.

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*Reprinted by permission of the publishers from _On Knowing: Essays for the Left Hand_ (Cambridge, Mass.: The Belknap Press of Harvard University Press, Copyright 1962 by the President and Fellows of Harvard College), pp. 118-119.

THE ESSENTIALS OF CURRICULUM*

John Dewey

All information and systematized scientific subject matter have been worked out under the conditions of social life and have been transmitted by social means. But this does not prove that all is of equal value for the purposes of forming the disposition and supplying the equipment of members of present society. The scheme of a curriculum must take account of the adaptation of studies to the needs of the existing community life; it must select with the intention of improving the life we live in common so that the future shall be better than the past. Moreover, the curriculum must be planned with reference to placing essentials first, and refinements second. The things which are socially most fundamental, that is, which have to do with the experiences in which the widest groups share, are the essentials. The things which represent the needs of specialized groups and technical pursuits are secondary. There is truth in the saying that education must first be human and only after that professional. But those who utter the saying frequently have in mind in the term human only a highly specialized class: the class of learned men who preserve the classic traditions of the past. They forget that material is humanized in the degree in which it connects with the common interests of men as men.

Democratic society is peculiarly dependent for its maintenance upon the use in forming a course of study of criteria which are broadly human. Democracy cannot flourish where the chief influences in selecting subject matter of instruction are utilitarian ends narrowly conceived for the masses, and, for the higher education of the few, the traditions of a specialized cultivated class. The notion that the "essentials" of elementary education are the three R's mechanically treated, is based upon ignorance of the essentials needed for realization of democratic ideals. Unconsciously it assumes that in the future, as in the past, getting a livelihood, "making a living," must signify for most men and women doing things which are not significant, freely chosen, and enobling to those who do them; doing things which serve ends unrecognized by those engaged in them, carried on under the direction of others for the sake of pecuniary reward. For preparation of large numbers for a life of this sort, and only for this purpose, are mechanical efficiency in reading, writing, spelling and figuring, together with attainment of a certain amount of muscular dexterity, "essentials." Such conditions also infect the education called liberal, with illiberality. They imply a somewhat parasitic cultivation bought at the expense of not having the enlightenment and discipline which come from concern with the deepest problems of common humanity. A curriculum which acknowledges the social responsibilities of education must present situations where problems are relevant to the problems of living together, and where observation and information are calculated to develop social insight and interest.

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*From Democracy and Education (New York: Macmillan, 1944), pp. 191-192.

THE NEXT GOAL OF EDUCATION*

Lawrence S. Kubie

What then must education achieve? It must make it possible for human beings themselves to change. That is the next necessary goal of education. We would find it hard to prove that even the greatest works of art, of literature, of music, of philosophy, of religion have freed the hearts of men. Yet until we have found out how to make it possible for man himself to change, we have no right to revere our culture as though it were a creative and moving force in the Divine Comedy. Until what we call culture, whether with a small "c" or a capital "K," can free man from the domination of his own unconscious, it is no culture. An education which gives man only sophistication, taste, historical perspective, manners, erudite parlor conversation, and knowledge of how to use and control the forces of nature is a fraud on the human spirit, no matter what inflated pretensions and claims it makes.

It is we, the educated and the educators, who have failed mankind, not mankind which has failed us. Science and art and philosophy and religion and learning have failed; just as it is medicine which has failed when a patient dies, not the corpse. This charge is not made lightly; nor is it to be brushed aside in facile self-defense. The next goal of education is nothing less than a progressive freeing of man -- not merely from external tyrannies of nature and of other men, but from internal enslavement by his own unconscious automatic mechanisms. Therefore, all of education and all of art and culture must contribute to this. It has long been recognized that in spite of technological progress, and in spite of art, literature, religion, and scholarly learning, the heart of man has not changed. This is both a challenge and a rebuke to our complacent acceptance of this bitter and devastating commentary on culture. My answer is based on the conviction that it is possible to break through the sonic barrier between conscious and unconscious processes, and thereby to bring to man for the first time in human history the opportunity to evolve beyond his enslaved past. That is why this thesis can claim for itself a realistic spiritual optimism.

Toward this goal a first step will be a deeper study of those early crises in human development, when the symbolic process begins to splinter into conscious, preconscious, and unconscious systems. The purpose of such a study of infancy would be to illuminate the origins of the repressive processes which produce these cleavages, since it is these which must be guided and controlled. As its second goal such a study would aim at the reintegration of unconscious with preconscious and conscious processes: something which has to be done not merely once, but repeatedly throughout the entire process of growth, from infancy through childhood, puberty, adolescence, and on into adult years. Just as the battle for political freedom must be won over and over again, so too in every life the battle for internal psychological freedom must be fought and won again and again, if men are to achieve and retain freedom from the tyranny of their own unconscious processes, the freedom to understand the forces which determine their thoughts, feelings, purposes, goals, and behavior. This freedom is the fifth and ultimate human freedom; and like every other freedom, it demands eternal vigilance.

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*From "The Forgotten Man of Education," Contemporary Educational Psychology (Richard M. Jones, ed.) (New York: Harper & Row, 1967), pp. 69-71.

EDUCATION AS THE ACQUISITION OF BEHAVIOR*

B. F. Skinner

In an American school if you ask for the salt in good French, you get an A. In France you get the salt. The difference reveals the nature of educational control. Education is the establishing of behavior which will be of anvantage to the individual and to others at some future time. The behavior will eventually be reinforced in many of the ways we have already considered; meanwhile reinforcements are arranged by the educational agency for the purposes of conditioning. The reinforcers it uses are artificial, as such expressions as "drill," "exercise," and "practice" suggest.

Education emphasizes the acquisition of behavior rather than its maintenance. Where religious, governmental, and economic control is concerned with making certain kinds of behavior more probable, educational reinforcement simply makes special forms more probable under special circumstances. In preparing the individual for situations which have not as yet arisen, discriminative operants are brought under the control of stimuli which will probably occur in these situations. Eventually, noneducational consequences determine whether the individual will continue to behave in the same fashion. Education would be pointless if other consequences were not eventually forthcoming, since the behavior of the controllee at the moment he is being educated is of no particular importance to anyone.

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*From Science and Human Behavior (New York: Macmillan, 1953), pp. 402-403.

Seminar 2: The Power of an Organizing Idea

Man: A Course of Study is dense with facts. Salmon lay five thousand eggs. Baboons live in troops. An Eskimo man may lend his wife to a friend. How is this wealth of detail organized?

Underlying the data and exercises of the curriculum are powerful ideas that serve to pull the course together. One of these is "life cycle" -- that series of events (birth, growth, reproduction, death) that man shares with all other living things. Organizing ideas such as this make a subject more comprehensible, easier to remember and to use in new, creative ways.

> ...the basic ideas that lie at the heart of all science and mathematics and the basic themes that give form to life and literature are as simple as they are powerful...The early teaching of science, mathematics, social studies and literature should be designed to teach these subjects with scrupulous intellectual honesty, but with an emphasis upon the intuitive grasp of ideas and upon the use of these basic ideas.
>
> -- Jerome S. Bruner, The Process of Education

Film:	**"Life Cycle of the Pacific Coast Salmon"**
Booklets:	**Salmon** **Life Cycle** **The Brown Rat** **The Elephant** **The Wolf** **The Bottlenose Porpoise** **The Gnu** **The Grizzly Bear**
Teachers' Guide:	**Introductory Lessons/Salmon**
Reading:	**Mary Henle, "On Coping with Ambiguity"**

1. Choose the ten most important events in your lifetime and write each event on a card. (Events may be past, present or anticipated future.) Then, arrange the cards in some kind of chronological order and note which events are one-time-only occurrences, like birth, and which are

processes that continue for a period of time, like growing.

2. Watch the film "Life Cycle of the Pacific Coast Salmon" to examine the events in the life of another species.

3. Working in small groups, discuss information about the life events of a salmon. On a sheet of paper, draw a long line to represent the lifetime (about five years) of a salmon and mark on the line the significant events in its life. When all groups have finished, pool the information on the board.

4. Up to this point, information has been gathered in terms of lifetime events of an individual. In order to consider the species, draw the following chart on the board and fill in the information for the species as a whole.

	Length of lifetime	Length of dependency	What parents do for survival of young during dependency	Number of offspring in female lifetime	Number that survive to reproduce
Man (in U.S.A.)					
Salmon					

> What are the differences in the ways the two species survive?
> How does the way in which this information has been organized help answer questions? pose new ones?

5. Read one of the animal studies for life cycle information.

> How does the notion of life cycle organize new learning?

Add the life cycle information of additional animals to the large chart, and consider the following statement from Jerome Bruner.

> Grasping the structure of a subject is understanding it in a way that permits many other things to be related to it meaningfully. To learn structure, in short, is to learn how things are related. (The Process of Education, p. 7)

6. Consider your original lifetime event cards.

Which represent life cycle events shared by other animals? Which are unique to man?
What are some of the deep human concerns that come into sharper focus in considering the concept of life cycle?
Do these concerns point up important differences between animal and human lifetimes?
How has the organizing idea 'life cycle' contributed to your understanding of man?
Why will life cycle mean different things to children than it does to adults?

7. Life cycle is one of many organizing ideas in the course. Others include adaptation, learning, culture, technology, social organization, world view.

   Which of these is useful for organizing the information on salmon? What new questions does it raise about the salmon?

8. Read "On Coping with Ambiguity" and "Lifetimes and Life Cycles" (pp. 13-17 in Introductory Lessons/Salmon).

   Of the questions that students will be likely to ask, which should be left open for further exploration?

ON COPING WITH AMBIGUITY

Mary Henle*

Have you ever noticed how easy it is to end an argument by agreeing with your opponent? Then there is nothing left to argue about, the attack collapses, and peace is restored. If the discussion is a serious one, with real differences of opinion, this peace-making device leaves the issue unresolved. We do not always change our mind -- or that of our opponent -- in the course of discussion, but confronting an opposite point of view often forces us to clarify our thinking. To close the argument too soon deprives us of this opportunity.

Not only arguments, but problems also can be closed too soon. We often feel pressure to get through with particular questions in order to move on with the lesson. In so doing, we may be missing real pedagogical opportunities.

Every teacher knows how nice it is to be able to answer a question with a straightforward "Yes" or "No," to be able to call an answer right or wrong; but -- in social studies at least -- it is seldom possible to do so. The more interesting the question or the answer, the less it is possible to deal with it in a simple and unambiguous way. Since we cannot escape from ambiguity, we are faced with the problem of how to cope with it.

To get at the distinctive characteristics of human beings, the teacher asks pupils to list the important events that happen in people's lifetimes. Typical answers are written on the board:

They are born
They talk
They go to school
They live in families and communities
They get married
They work

Next, with a view to making the distinction between culturally vs. biologically determined events, the teacher asks, "Which of these happen to human beings only? Which happen also to animals?" At this point the teacher has the choice of getting on with the lesson, smoothly but superficially, or helping his pupils look more deeply into real problems. For this is the point at which troublesome (and therefore interesting) questions typically arise.

As an example, suppose we consider work to be a specifically human function. But, children might object, don't beavers work? Don't we say a person is as busy as a bee? -- bees must work. What about work horses? Or we say a machine can do the work of ten men. Don't machines work, as well as animals and men?

---

*Dr. Mary Henle, Professor of Psychology, New School for Social Research, New York

With these questions we again find ourselves in deep water. It would, of course, be possible to close off discussion by saying: "Beavers and bees work by instinct. People have to learn how to work; bees and beavers just know how." To call the work of beavers instinctive in contrast to the learning required of working human beings is only to apply a label, not to further understanding. This is a label that might silence discussion, at least for a time, but in so doing, it closes the door to the really interesting problems. In order to decide whether work is specifically human, we need to become clear about what we mean by work. This will not only clarify the concept, but will soon lead into general questions of man's relation to his environment: to questions of ecology and, ultimately, to those of economics and social organization.

Furthermore, if we were to say that beavers work instinctively, we would soon realize that we understand very little of what we are talking about. What is the nature of instinct? What is its relation to learning? These are questions actively being investigated at the present time. The more we learn about instinct, the more we see that we are posing a problem, not answering a question, when we use the term.

Again, children may ask: "Don't animals marry? Don't they go to school? My dog went to school for obedience training..." Once more, relevant distinctions are necessary: the distinction between mating and marriage in the one case, that between learning and going to school in the other. And once again, these simple questions can lead us as far as we want to go into wider issues -- for example, problems of family and social organization, of culture and its transmission, and others.

These examples are perhaps enough to suggest the value of keeping questions open. It is all too easy to settle matters prematurely by applying a label or giving a superficial and plausible, if misleading, answer. But as we can see from the above examples, questions are our guides into complex subject matters. Of course, there are various kinds of questions; some can be answered simply, others not at all (at least at the present time). The value of a question, furthermore, is relative to the context in which it appears -- the lesson itself, the children's understanding, our own changing and growing ability to see its implications. The judgment of how soon is "too soon" to close a question remains, therefore, an individual one. It is only suggested that this matter itself is one that should not be settled routinely or too soon.

We began with the problem of how to cope with ambiguity. The answer our examples suggest is that it can be coped with by recognizing and enjoying it, by taking advantage of it.

Seminar 3: How Does Contrast Promote Learning?

> We seek exercises and materials through which our pupils can learn wherein man is distinctive in his adaptation to the world, and wherein there is a discernible continuity between him and his animal forbears.
>
> -- Jerome S. Bruner, Man: A Course of Study

In Man: A Course of Study the material on animals is introduced to provide data for two types of contrasts: the contrasts and comparisons among the animal species, and the contrasts and comparisons between the animals and man.

This seminar focuses on the differences in the ways the salmon and the herring gull materials explore the concept of adaptation and how the same data can be used to raise questions of how man is similar and how different from other animals.

Do we learn more from exploring differences or similarities?
How does contrast promote learning?

Film:	**"Herring Gull Behavior"**
Tape:	**"DeVore Discussing Herring Gull Behavior"**
Readings:	**Talks to Teachers, "The Study of Animals"**
Booklets:	**Animal Adaptation** **Herring Gulls** **Salmon**
Reading:	**Jerome S. Bruner, "Contrast as a Tool for Learning"**

1. Review Animal Adaptation for questions to keep in mind while viewing "Herring Gull Behavior." Then watch the film.

2. Working in small groups and using Salmon, Herring Gulls and the film as resources, quickly list:

    -the structures and behaviors of salmon and of gulls that help the young survive.

-the structures and behaviors that help the salmon and the herring gull avoid being eaten.

3. Listen to Professor DeVore on tape.

Which behaviors of herring gulls are responses to both internal changes and the behaviors of other gulls?
How do the contrasts between human beings and herring gulls suggested by Professor DeVore help us understand gull behavior? Human behavior?

4. What concepts become clear by contrasting salmon and herring gull?

By contrasting man and herring gull?
By contrasting children and adults?
By contrasting Eskimos and Americans?

What new questions are raised by each of the contrasts?

CONTRAST AS A TOOL FOR LEARNING*

Jerome S. Bruner*

Let me move on to the last point: How one engineers discovery so that it takes place in a context of problem solving -- so that one can retrieve and combine information in an appropriate setting rather than under the spell of 'inspiration.'

One of the most powerful tools we have for searching is contrast. Contrast can be engineered or self-engineered. Indeed, it can become an acquired taste. We have gone out of our way to present material to children in contrastive form -- film of baboon juveniles playing followed by human children playing in an identical habitat. The children discover quite readily that little baboons play mostly with little baboons and do not play with things, that human children play with things and with each other. This is engineering a situation. It provides a start for a discussion of tool use, free hands, and so on. Later, give them kittens (who play with things) and then have them deal anew with the problem. They will very quickly understand that cats play with things, but not by holding them.

We believe that by getting the child to explore contrasts, he is more likely to organize his knowledge in a fashion that helps discovery in particular situations where discovery is needed. I need not go into an elaborate justification of the method of contrast here, and will only note that its efficacy stems from the fact that a concept requires for its definition a choice of a negative case. Man is a different concept contrasted to standing bears, to angels, to devils. Readiness to explore contrasts provides a choice among the alternatives that might be relevant.

*From "Some Elements of Discovery," in L. Shulman and E. Keisler (eds.), Learning by Discovery (Chicago: Rand McNally, 1966).

Seminar 4: The Will to Learn

Why do people learn? Some would argue that people learn only those things for which they have received external reinforcement. In contrast, this seminar focuses on intrinsic motives for learning and calls them the "will to learn." By viewing a filmed class discussion about the birth of an Eskimo hunter, participants in the seminar discuss how learning is motivated by curiosity, the desire for competence and the need to respond to others while working toward a common objective.

The notion that each individual posesses a will to learn explains why certain tasks may be intriguing and therefore easy to learn. However, it does not address itself directly to the reasons why certain topics, especially those related to the self (e.g., reproduction), are emotionally compelling while other, less personal topics (e.g., natural selection) are interesting in a more intellectual way. In considering motives for learning, seminar participants focus on sexual reproduction as an example of a topic where the will to learn is strong but the paths to learning are not always clear.

Teacher Education Film: "The Birth of a Hunter"

Teachers' Guide: Introductory Lessons/Salmon

Reading: Jerome S. Bruner, "The Will to Learn"

Before the Seminar: Note comments and questions of student pertaining to reproduction.

1. Discuss questions about reproduction that students have asked in class.

    What aspects of reproduction do students ask about?
    What do they really want to know when they ask the questions?
    How is their desire to learn about reproduction like and unlike [illegible] desire to learn about other topics?
    Does [illegible]r's description of the will to learn adequately account for children's questions?
    How does adult behavior shape children's learning about reproduction?

2. Look at the material on reproduction in Introductory Lessons/Salmon, pages 53 to 62. (Consider also books such as Sexual Reproduction by Susan Michelmore, Animal Reproduction by Millicent Selsam, and other books suggested in the bibliography.)

    Are these materials appropriate for your classroom situation?
    What other materials and resources in the community would be helpful?
    How can animals in the classroom help children learn about reproduction?
    How are the goals of discussing reproduction as it appears in this course different from those in a course on sex education?
    What are the consequences of bringing this controversial topic into the classroom -- political as well as pedagogical?

3. Children are anxious to learn about many things -- reproduction is just one. Before watching the film "The Birth of a Hunter," divide into three groups: one to look for examples of learning that seem motivated by curiosity; the second to note learning that seems motivated by the need for competence and identification with a competence-model; and the third to watch for learning that seems motivated by the need for reciprocity.

4. Take a few minutes to review the Bruner article. Then -- still working in groups -- prepare short reports on the intrinsic motives for learning that seemed to be operating in the students. Present each report to the other groups.

5. As a conclusion, discuss ways that an intrinsic will to learn may be encouraged in subjects other than social studies. Consider the disadvantages of promoting learning with external reinforcements such as grades, teacher approval and punishments.

THE WILL TO LEARN*

Jerome S. Bruner

Almost all children possess what have come to be called "intrinsic" motives for learning. An intrinsic motive is one that does not depend upon reward that lies outside the activity it impels. Reward inheres in the successful termination of that activity or even in the activity itself.

Curiosity

Curiosity is almost a prototype of the intrinsic motive. Our attention is attracted to something that is unclear, unfinished, or uncertain. We sustain our attention until the matter in hand becomes clear, finished, or certain. The achievement of clarity or merely the search for it is what satisfies. We would think it preposterous if somebody thought to reward us with praise or profit for having satisfied our curiosity. However pleasant such external reward might be, and however much we might come to depend upon it, the external reward is something added. What activates and satisfies curiosity is something inherent in the cycle of activity by which we express curiosity. Surely such activity is biologically relevant, for curiosity is essential to the survival not only of the individual but of the species.

* * *

Little enough is known about how to help a child become master of his own attention, to sustain it over a long, connected sequence. But while young children are notoriously wandering in their attention, they can be kept in a state of rapt and prolonged attentiveness by being told compelling stories. There may be something to be learned from this observation. What makes the internal sequence of a story even more compelling than the distractions that lie outside it? Are there comparable properties inherent in other activities? Can these be used to train a child to sustain his curiosity beyond the moment's vividness?

* * *

Insofar as one may count on this important human motive -- and it seems among the most reliable of the motives -- then it seems obvious that our artificial education can in fact be made less artificial from a motivational standpoint by relating it initially to the more surfacy forms of curiosity and attention, and then cultivating curiosity to more subtle and active expression. I think it is fair to say that most of the success in contemporary curriculum building has been achieved by this route. When success comes, it takes the form of recognition that beyond the few things we know there lies a domain of inference: that putting together the two and two that we have yields astonishing results. But this raises the issue of competence, to which we must turn next.

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*Reprinted by permission of the publishers from Toward a Theory of Instruction (Cambridge, Mass.: The Belknap Press of Harvard University Press, Copyright 1966 by the President and Fellows of Harvard College), pp. 114-120, 122-128.

Competence

We get interested in what we get good at. In general, it is difficult to sustain interest in an activity unless one achieves some degree of competence...To achieve the sense of accomplishment requires a task that has some beginning and some terminus...It seems likely that the desire to achieve competence follows the same rule. Unless there is some meaningful unity in what we are doing and some way of telling how we are doing, we are not very likely to strive to excel ourselves.

* * *

While we do not know the limits within which competence drives can be shaped and channeled by external reward, it seems quite likely that they are strongly open to external influence. But channelization aside, how can education keep alive and nourish a drive to competence -- whether expressed in farming, football, or mathematics? What sustains a sense of pleasure and achievement in mastering things for their own sake -- what Thorstein Veblen referred to as an instinct for workmanship?

* * *

What appears to be operative is a process we cavalierly call identification. The fact of identification is more easily described than explained. It refers to the strong human tendency to model one's "self" and one's aspirations upon some other person. When we feel we have succeeded in "being like" an identification figure, we derive pleasure from the achievement and, conversely, we suffer when we have "let him down..."

The term identification is usually reserved for those strong attachments where there is a considerable amount of emotional investment. But there are "milder" forms of identification that are also important during the years of childhood and after. Perhaps we should call those who serve in these milder relationships "competence models." They are the "on the job" heroes, the reliable ones with whom we can interact in some way. Indeed, they control a rare resource, some desired competence, but what is important is that the resource is attainable by interaction...

I would like to suggest that what the teacher must be, to be an effective competence model, is a day-to-day working model with whom to interact. It is not so much that the teacher provides a model to imitate. Rather, it is that the teacher can become a part of the student's internal dialogue -- somebody whose respect he wants, someone whose standards he wishes to make his own. It is like becoming a speaker of a language one shares with somebody. The language of that interaction becomes a part of oneself, and the standards of style and clarity that one adopts for that interaction become a part of one's own standards.

Reciprocity

Finally, a word about one last intrinsic motive that bears closely upon the will to learn. Perhaps it should be called reciprocity. For it involves a deep human need to respond to others and to operate jointly with them toward an objective...Like the other activities we have been discussing, its exercise seems to be its sole reward. Probably it is the basis of human society, this response through reciprocity to other members of one's species. Where joint action is needed, where reciprocity is required for the group to attain an objective, then there seem to be processes that carry the individual along into learning, sweep him into a competence that is required in the setting of the group. We know precious little about this primitive motive to reciprocate, but what we do know is that it can furnish a driving force to learn as well.

* * *

The corpus of learning, using the word now as synonymous with knowledge, is reciprocal. A culture in its very nature is a set of values, skills, and ways of life that no one member of the society masters. Knowledge in this sense is like a rope, each strand of which extends no more than a few inches along its length, all being intertwined to give a solidity to the whole. The conduct of our educational system has been curiously blind to this interdependent nature of knowledge. We have "teachers" and "pupils," "experts" and "laymen." But the community of learning is somehow overlooked.

* * *

At the risk of being repetitious, let me restate the argument. It is this. The will to learn is an intrinsic motive, one that finds both its source and its reward in its own exercise. The will to learn becomes a "problem" only under specialized circumstances like those of a school, where a curriculum is set, students confined, and a path fixed. The problem exists not so much in learning itself, but in the fact that what the school imposes often fails to enlist the natural energies that sustain spontaneous learning -- curiosity, a desire for competence, aspiration to emulate a model, and a deep-sensed commitment to the web of social reciprocity. Our concern has been with how these energies may be cultivated in support of school learning...

You will have noted by now a considerable de-emphasis of "extrinsic" rewards and punishments as factors in school learning. There has been in these pages a rather intentional neglect of the so-called Law of Effect, which holds that a reaction is more likely to be repeated if it has previously been followed by a "satisfying state of affairs." I am not unmindful of the notion of reinforcement. It is doubtful, only, that "satisfying states of affairs" are reliably to be found outside learning itself -- in kind or harsh words from the teacher, in grades and gold stars, in the absurdly abstract assurance to the high school student that his lifetime earnings will be better by 80 percent if he graduates. External reinforcement may indeed get a particular act going and may even lead to its repetition, but it does not nourish, reliably, the long course of learning by which man slowly builds in his own way a serviceable model of what the world is and what it can be.

Seminar 5: Learning by Observing

Experience as a source of information gains in power when there are opportunities to get outside the experience and look at it with some detachment. This seminar focuses on structured observations as a way of reflecting upon one's own experiences.

Teacher Education Films:	"Making Life Ropes" "Life Cycle Chart"
Booklets:	The Observer's Handbook Field Notes

1. Divide into two groups and observe the films in terms of the following questions:

   Group 1: Which comments of the children indicate that they are:

   -using knowledge gained from the course?
   -using knowledge gained from their own experience?
   -speaking of their own concerns?

   Group 2: Which comments of the teacher use the children's contributions to:

   -lead from one part of the discussion to the next?
   -focus the discussion?
   -other purposes?

2. After comparing observations, consider the way observation is organized by a set of questions:

   Does the observer see different things depending upon the categories of observation? If not, in this case, why not?
   Would teachers who have not taught these lessons see the classes differently from teachers who have taught the lessons?
   What other categories of observation could be used to view the films?
   Are the categories useful in terms of reflecting upon your own classes?

3. Consider how "objective distance" in observation situations permits an intellectual overview.

What can you learn from observing that you cannot learn from participating in the situation?
What things do you rarely learn from observation alone?

4. Read in DeVore's Field Notes pages 8, 21 (10:22 am), 27 (5:00 pm), 37-39, 43, 51.

    What categories is the observer using to structure the data he is collecting?
    How do past experiences provide a structure for observing new phenomena?
    Would an inexperienced observer have seen the same phenomena as DeVore?

5. The Observer's Handbook provides an opportunity for students to gain reflective distance on activities they themselves engage in every day. In addition, it provides an organized framework for their observations. In examining The Observer's Handbook, consider:

    Why are students asked to observe younger children?
    How do the "data sheets" on pages 3 and 11 provide a structure for observing that is different from a set of questions?
    What differences would you predict between what children see in a playground situation with and without categories of observation?

6. On page 29 of The Observer's Handbook, students are invited to design their own observation projects. Choose one and list questions to be explored by observation. Next design a data sheet that would usefully structure observation and analysis of the behavior to be studied.

7. During the next few weeks you will observe the learning that takes place when your students construct baboon life ropes. Work together as a group to prepare a chart for structuring this observation (The Observer's Handbook does not include a data sheet for recording observations of learning). Develop your charts to gather information on:

    -the use of organizing ideas in learning.
    -the use of language in learning.
    -social relationships of students while learning was taking place.

    Between now and the next seminar, make your observations, and bring your completed charts to the next meeting. They will be used as part of Seminar 6.

Note: School librarians and other resource specialists might be invited to join you for the next seminar.

Seminar 6: Learning in Animals, and How It Differs from Human Learning

Learning is perhaps man's most distinguishing characteristic. His dependence on learning is one way of defining his humanness. This seminar examines the relationship between animal and human learning and suggests a few of the many ways the Man: A Course of Study materials contribute to children's understanding of the process upon which much of their growth and development depends. Although this seminar does not examine specifically the learning that takes place in school, participants may be stimulated by these discussions to explore new ways in which the environment of the classroom can be shaped to promote effective learning.

How is human learning similar to learning in animals?
How is human learning unique?
How can an understanding of the uniqueness of human learning help us promote more effective classroom learning?

Film:	**"The Older Infant"**
Booklets:	**Innate and Learned Behavior** **The Observer's Handbook** **Baboons**
Teachers' Guide:	**Talks to Teachers, "Innate and Learned Behavior"**
Reading:	**Suzanne Langer, "The Power of Symbols"**

1. In groups of two or three, reread the student booklet Innate and Learned Behavior.

   What does this book indicate about the differences between the way herring gulls and baboons learn? What are the consequences of this learning in the life cycle of each species?
   What part does dependency play in the learning process? What is the relationship between independence and dependence in animal learning? Is this relationship relevant to an understanding of human learning?
   What are the different kinds of learning discussed in this book? Choose examples of each type from activities suggested on pages 15-28 in The Observer's Handbook.

2. Review the student booklet Baboons. Then, as a group, view "The Older Infant," keeping in mind the discussion of dependence and independence.

    What kinds of learning are exhibited here?
    How is baboon learning related to curiosity and risk-taking?
    What learnings take place at different stages of growth? How is the early dependent period important to baboon learning? How is the growing independence of the older infant important for learning?
    What does this baboon learn from his mother? From adult males? From other infant baboons? How does a baboon's membership in the group shape his learning?

3. Drawing upon your observations of learning by your students, during the making of baboon life ropes and on the film "The Older Infant," consider the following questions:

    What ways do children learn that are similar to ways young baboons learn?
    What are the significant differences?

    Share your observation charts, and shift the discussion to focus on the symbolic component of human learning, the one feature that above all others distinguishes man from other animals. The children observed were learning within the life cycle; they were also learning about the life cycle, and through activity, invention and discussion they acquired knowledge about animal and human experience which transcends their immediate experience.*

    How did the children's awareness of an "organizing idea" shape their learning behavior in this activity?
    How was the idea, and the facts that illustrate the idea, represented and exchanged by the children in this activity?
    How did the social relationships between the children help (or hinder) the shaping and clarification of the idea?
    What is the role of language and writing in defining and communicating the idea to each other?

4. Review the article by Suzanne Langer. Discuss any insights into your own learning style and those of your students that resulted from reading the article.

    Why are the concepts of symbol and language so difficult for children to understand?
    How would you design a lesson to clarify these uniquely human creations?

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*Those who have access to the film "A Time for Learning" can use the episode of the three boys doing the herring gull life rope exercise for additional observation for this discussion.

Teachers with a particular interest in exploring the recent work on learning in the preschool years and its implications for improving our understanding of school-age learning might consult Jerome S. Bruner, Processes of Cognitive Growth: Infancy.

As preparation for the next seminar, read the student booklet The Baboon Troop.

THE POWER OF SYMBOLS*

Suzanne K. Langer

Not higher sensitivity, not longer memory or even quicker association sets men so far above other animals that he can regard them as denizens of a lower world: no, it is the power of using symbols -- the power of speech -- that makes him lord of the earth...Symbolism is the recognized key to that mental life which is characteristically human and above the level of sheer animality. Symbol and meaning make man's world, far more than sensation; Miss Helen Keller, bereft of sight and hearing, or even a person like the late Laura Bridgman, with the single sense of touch, is capable of living in a wider and richer world than a dog or an ape with all his senses alert.

* * *

...Mr. Chase, watching his cat Hobie Baker, reflects:**

> Hobie can never learn to talk. He can learn to respond to my talk, as he responds to other signs...He can utter cries indicating pain, pleasure, excitement. He can announce that he wants to go out of doors. But he cannot master words and language. This in some respects is fortunate for Hobie, for he will not suffer from hallucinations provoked by bad language. He will remain a realist all his life...He is certainly able to think after a fashion, interpreting signs in the light of past experience, deliberately deciding his course of action, the survival value of which is high.
>
> Instead of words, Hobie sometimes uses a crude gesture language. We know that he has a nervous system corresponding to that of man, with messages coming into the receptors in skin, ear and eye and going over the wires to the cortex, where memories are duly filed for reference. There are fewer switchboards in his cortex than in mine, which may be one of the reasons why he cannot learn to talk...
>
> Generally speaking, animals tend to learn cumulatively through experience. The old elephant is the wisest of the herd. This selective process does not always operate in the case of human beings. The old are sometimes wise, but more often they are stuffed above the average with superstitions, misconceptions, and irrational dogmas. One may hazard the guess that erroneous identifications in human beings are pickled and preserved in

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*Excerpts from Philosophy in a New Key (Cambridge: Harvard University Press, 1951), pp. 33, 34, 37, 40, 94-95, 96.

**Stuart Chase, The Tyranny of Words (1938), pp. 46-56.

> words, and so not subject to the constant check of the environment, as in the case of cats and elephants...

* * *

Man's superiority in the race for self-preservation was first ascribed to his wider range of signals, his greater power of integrating reflexes, his quicker learning by trial and error; but a little reflection brought a much more fundamental trait to light, namely his peculiar use of "signs." Man, unlike all other animals, uses "signs" not only to indicate things, but also to represent them. To a clever dog, the name of a person is a signal that the person is present; you say the name, he pricks up his ears and looks for its object. If you say "dinner," he becomes restive, expecting food. You cannot make any communication to him that is not taken as a signal of something immediately forthcoming. His mind is a simple and direct transmitter of messages from the world to his motor centers. With man it is different. We use certain "signs" among ourselves that do not point to anything in our actual surroundings. Most of our words are not signs in the sense of signals. They are used to talk about things, not to direct our eyes and ears and noses toward them. Instead of announcers of things, they are reminders. They have been called "substitute signs," for in our present experience they take the place of things that we have perceived in the past, or even things that we can merely imagine by combining memories, things that might be in past or future experience...They serve...to let us develop a characteristic attitude toward objects in absentia, which is called "thinking of" or "referring to" what is not here. "Signs" used in this capacity are not symptoms of things, but symbols.

* * *

Language is, without a doubt, the most momentous and at the same time the most mysterious product of the human mind. Between the clearest animal call of love or warning or anger, and a man's least, trivial word, there lies a whole day of Creation -- or in modern phrase, a whole chapter of evolution. In language we have the free, accomplished use of symbolism, the record of articulate conceptual thinking; without language there seems to be nothing like explicit thought whatever. All races of men -- even the scattered, primitive denizens of the deep jungle, and brutish cannibals who have lived for centuries on world-removed islands -- have their complete and articulate language. There seem to be no simple, amorphous, or imperfect languages, such as one would naturally expect to find in conjunction with the lowest cultures. People who have not invented textiles, who live under roofs of pleated branches, need no privacy and mind no filth and roast their enemies for dinner, will yet converse over their bestial feasts in a tongue as grammatical as Greek, and as fluent as French!

Animals, on the other hand, are one and all without speech. They communicate, of course; but not by any method that can be likened to speaking. They express their emotions and indicate their wishes and control one another's behavior by suggestion. One ape will take another by the hand and drag him into a game or to his bed; he will hold out his hand to beg for food, and will sometimes receive it. But even the highest apes give no indication of speech. Careful studies have been made of the sounds they emit, but all systematic observers agree that none of these are denotive, i.e. none of them are rudimentary words...[An animal's] vocal expressions of love are symptoms of an emotion, not the name of it, nor any other symbol that represents it (like the heart on a Valentine.) And true language begins only when a sound keeps its reference beyond the situation of its instinctive utterance, e.g., when an individual can say not only: "My love, my love!" but also: "He loves me -- he loves me not."

Seminar 7: Learning by Comparison: The Values and Dangers

In an effort to define man's humanness, Man: A Course of Study examines man as a social creature. For the purpose of comparison and in order to provoke new questions, we look at other social animals, particularly group-living baboons. Baboons do not have "families," but they do have a group structure held together by learned behavior patterns and strong emotional ties. This group structure enables us to examine the social significance of behavior such as learning, aggression, dominance, cooperation and communication.

What patterns of cooperation and competition can be observed in human groups?
What issues raised in the study of cooperation and competition among baboons are useful in thinking about human social behavior?
What cannot be learned about man by studying animals?

Film:	**"The Baboon Troop"**
Booklets:	**The Baboon Troop** **A Journey to the Arctic**
Readings:	**Alan R. Beals, "What Is a Man?"** **Irven DeVore, "Primate Social Life"** **_____, "On Konrad Lorenz"** **"Baboons, or Why Study Animals?"**

1. Begin the seminar by reading aloud Alan Beals' "What Is a Man?"

    How does Beals describe the "great divide" between man and all other animals?

2. Bearing in mind that the purpose of this seminar is to examine the values and dangers of using comparisons between human beings and baboons, review the student booklet The Baboon Troop and view the film "The Baboon Troop."

    What are the characteristics of dominant males? Which characteristics are learned?
    How does dominance and aggression in males and females promote order and ensure survival in a baboon troop?
    How does affection and cooperation promote order and ensure survival in a baboon troop?

Does this film raise new questions about the presence of competition and cooperation in human social groups?

3. In groups of two or three, reexamine in detail all the activities of the Netsilik described in the passages of A Journey to the Arctic read earlier (April 19 and 21) and discuss these questions:

   Which activities of the Netsilik promote group cooperation? Which promote individual competition? Which promote both?
   How do these behaviors differ in fundamental ways from the cooperative and competitive behavior of baboons?
   What examples of cooperative and competitive behavior in our society point out the differences between baboons and man?

4. Reassemble as a group. Read "On Knorad Lorenz" and then discuss the values and dangers of learning by comparison.

   What comparisons will your students make between the behavior of baboons and human beings?
   How can you use these comparisons to point up the differences between baboons and human beings?

You might invite science specialists in your school system to join the next seminar and discuss the roots of aggression.

WHAT IS A MAN?*

Alan R. Beals

Far north, where the ice shelf lies on the waters of the Arctic Ocean, are holes where seals rise to breathe. In season, and according to complex plans laid down by the ancestors, men come to these holes. Alone, wrapped in garments of fur, a man waits beside a seal's blowhole. A cold wind blows across the ice and snow. The man waits. A black shadow appears. The man stands ready with his harpoon. Drawing upon the advice of friends and kinsmen, basing his actions upon years of play and practice, he casts his weapon. It strikes the seal, and the handle breaks away leaving a barbed hook embedded in the animal's flesh. The seal dives and the line attached to the hook burns across the gloved hands of the hunter. The water churns and the harpoon handle bobs against the ice on the side of the blowhole. Centuries of experience have led to the perfection of the man's clothing and his weapon. Even so, the man has difficulty gaining a firm grip upon the harpoon line. The man is half frozen and weak from hunger. The seal is bleeding and in need of oxygen. Man and seal, two animals, are tugging on opposite ends of the same line. There is a good probability that neither one will survive. The man puts forth his greatest effort. His feet begin to slip. He is lost, alone. His being cries out for help. Suddenly, behind him, pulling on the line, he feels the hands of father, grandfather and all who died before. These are the spirits of the ancestors stretching in an almost invisible line behind the hunter toward the mist and blackness of the distant shore. With a last burst of strength, man, the hunter, heaves the seal from the water, cuts its throat and drinks the outward pulsing blood.

Man and seal are both warm-blooded mammals. The Eskimo recognizes the kinship and seems to see in the seal a kind of nobility in which the seal yields up its soul so other souls may live. The differences between the two animals are not great. The seal is smaller and has slightly less brain tissue per pound of body weight. The flesh and blood and bones of a seal are much like those of a man. The seal is adapted to life in the Arctic; man is a newcomer there. Man learns from experience; so does the seal. The seal observes the world around him and learns all of the basic tricks of survival. The man also observes and learns. Both animals learn complicated routines, do tricks, and appear in circuses. Neither the eye of the camera nor the knife of a surgeon can tell us precisely what it is that gives the man his edge over the seal.

What is it that man has and the seal lacks...?

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*From Culture in Process by Alan R. Beals. Copyright ©1967 by Holt, Rinehart and Winston, Inc. Reprinted by permission of Holt, Rinehart and Winston.

The culture-building capacity sets man apart from all other known animals. This capacity permits men to communicate by means of language, to cooperate in solving problems, to raise and train children, to develop unique interpretations of the nature of things, and to form organizations. Almost everything that man does is done by some animal somewhere, but there is no animal capable of doing all the things that men do. No man long exists without the help and love of other humans. No man exists unless he becomes in some way a part of the great message that is culture.

SEMINAR 7

34

PRIMATE SOCIAL LIFE*

Irven DeVore

From recent field studies of monkeys and apes, it is now possible to describe, in a broad sense, a fundamental primate way of life -- one which is shared by monkeys, apes, and man...By comparison with other mammals, primate social behavior has certain rare, almost unique qualities...

Essentially primate life is group life. It is more than that, however, for many animals live in herds or groups. It is the special characteristics of primate groups which set them apart...The primate group is relatively large: the average is about twenty, but in baboons, it may be as large as two hundred. Membership in the group is persistent and stable; unlike most mammals, there are no seasonal changes in group composition. The group is highly organized; it includes both sexes and all ages from birth until death. Individual differences based on age, sex, and relative dominance result in a separation of roles and statuses among the group members.

These characteristics of primate groups -- comparatively large size, stable membership, and role differentiation -- lead to complex social relationships and special accommodations among the members of the group. This is easiest to see in the socialization of the infant. The infancy of primates is not only long by comparison to other animals, but also, from the very outset, child rearing is a group activity. This is in striking contrast to the situation found with many animals, where the mother is separated from others of her species during the birth period -- living alone with her offspring until they are able to support themselves. Even among mammals which live in herds, the "group" is usually a harem composed only of other females and their offspring, or has only one adult male attached to the herd. In the primates, on the other hand, the mother is neither separate from the group while her offspring are young, nor does she live in a female harem. On the contrary, she and her infant are surrounded by curious juveniles and adults of all ages, and she depends upon the adult males to protect the young infant from danger.

In considering the primate background to human social groupings, it is this organization of all the members of the group -- young and old, male and female -- into a functioning social system that is more striking than the presence or absence of a "family" within the group. Among the monkeys and apes, only the gibbon lives in what has been called a "family"; that is, an adult male and female pair with their offspring. This resemblance with the human family, however, is fortuitous, and is produced by entirely different behavior patterns.

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*From "The Evolution of Social Life," The Voice of America Forum Lectures, Anthropology Series #2.

Except for a mating pair, adult gibbons are extremely antagonistic. As a result of this antagonism gibbon pairs live apart from each other, and their offspring remain with them only until maturity, when they are old enough to seek mates and form a new mating pair. The gibbon group, then, is more comparable to a breeding pair of birds than it is to the human family. The human family never occurs in isolation, but always as a subgroup within a larger social unit, such as the tribe. It is significant that gibbons, whose physical adaptation to life in the trees is more extreme than any other ape's, are the least like man in their social organization as well. By contrast, the baboons and macaques, who are more specially adapted to life on the ground than any other primate except man, have a social organization that resembles that of humans in many fundamental respects.

These are the only monkeys whose average group size, about fifty, is comparable to that of human hunter-gatherer groups. It is also among the baboon-macques that the roles of adult males and adult females differ to the degree they do in human societies. The adult male baboon, with powerful muscles, large canine teeth, and a body weight twice that of the female, is specialized for defense of the troop; the female is specialized for child birth and child rearing. These characteristics of sexual dimorphism are most pronounced in ground-living monkeys and apes and least evident in tree-living forms. The sexual dimorphism of adult baboons has a morphological basis; in humans, adult male and female roles depend on cultural designations. This comparison should not be pushed too far, however. Human behavior is significantly different from monkey and ape behavior. The human family is based on a new biological system, including loss of "heat" or estrus in the female; and human ideas of ownership, exogamy, and cooperation are as unique among the primates as human language, tools, and war.

A brief description of the social organization of a baboon troop will illustrate important differences and similarities between monkey behavior and human behavior. In 1959, Professor Sherwood Washburn and I studied baboons living in the game parks of Kenya, East Africa. Baboons are common all over Africa, but it is only in these protected areas that we can observe the undisturbed inter-relationships of the baboons with other animals and plants. We were interested not only in the internal organization of the baboon troop, but also in the environment to which baboon social behavior has adapted...

...Just as in man, the social organization of monkeys and apes is based on the learning capacity of the infant during a long period of dependency on adult care. The infant baboon is born into a very protected social environment. The bond between the infant and its mother is intense, but all adults in the troop are solicitous of the infant's welfare, creating an atmosphere of security in which social contracts and early learning take place. By the time the mother weans her infant, it has joined a play group of other infants its own age. These young juveniles stay near the protective adult males. Through their constant association with each other in these play groups, the skills of adult life are practiced and developed, and by the time they reach adulthood the juveniles have established a relationship with every other member of the troop.

One important result of this long period of accommodation by the troop members to each other is that each troop becomes a discrete social unit with distinct social boundaries. Even when several troops are gathered at the same waterhole, the members of different troops do not mix. Females in estrus do not seek mates in adjoining troops...

At every stage of a baboon's life it is connected to other troop members by a complex series of relationships which, in their totality, bind the troop together. These relationships include: the mutual support which adults find in the dominance hierarchy; the attraction of the infant, the mother, and the adult males for each other, as well as the attraction which the males have for the other troop members; the bonds between the juveniles in the play group; the pleasurable activity in grooming groups; and a shared social tradition -- these features of baboon life, rather than infrequent sexual activity, give the baboon troop its characteristic social organization. In the evolution of baboon behavior, the conditions of life on the ground favored all those behavioral patterns which make it possible for individuals to live in the intimate association of the troop.

Even when baboons are compared to hunter-gatherers living in a similar environment, the differences far outweigh the similarities. Except for certain fundamental similarities -- a group size of about fifty, a stable organization with separation of male and female roles, and a prolonged period of infant dependency -- human groups have little in common with baboons... The population structure of the small, inbred baboon troop contrasts with the exogamous mating patterns of human groups. Put another way, human groups are related to neighboring groups by ties of marriage and kinship. As a result, the shift of individuals from one human group to another is the rule rather than the exception.

Differences in diet alone between vegetarian baboons and carnivorous hunter-gatherers necessitate patterns of life which differ markedly. This contrast is even more striking when it is extended to other monkeys and apes. All monkeys and apes are vegetarians, eating the fruits, berries, buds, and leaves of the forest. Some, such as baboons, macaques, chimpanzees, and gorillas find food on the ground as well. Baboons, for example, have extended their diet to include a wide variety of insects, underground roots, and, occasionally, a small animal. Diet is highly correlated with the distances primates travel. Tree-living monkeys forage in a small area, and many of them probably live their whole lives within a kilometer of the spot where they were born. By contrast, baboons range widely; a troop in savanna country moves over an area of about forty square kilometers in the course of a year.

Although this area is the largest home range described for any nonhuman primate, it is tiny by comparison to the home range of a hunter-gatherer group. One important reason a human can exploit so large an area is the existence of an improved home base, or camp. No monkey or ape has such a base; when a baboon troop leaves its sleeping place in the morning, all the troop members must move together. There is no assurance that the troop will return to the same sleeping place in the evening, and every individual, even though sick or injured, must keep up with the others or risk permanent separation from the troop. Because the whole troop moves together, it is not possible for baboons to hunt other animals effectively.

Even more important, the absence of a home base makes it impossible for males to go in one direction in search of game while females and juveniles disperse to gather vegetable foods -- a system of food-getting which seems universal among hunter-gatherers. Again, it is among wolves, not monkeys, that closer parallels are found. Wolves establish a den which they may use for several seasons, and adults in the pack aid a new mother by returning to the den and disgorging meat for the female and her pups. This kind of food sharing at an established base has no counterpart in nonhuman primate groups. In fact, every individual in a monkey or ape group forages for himself; monkey mothers do not share food even with their own infants. On the basis of diet alone, then, it is possible to predict many of the major contours of group life. From this point of view the emergence of consistent, effective hunting initiated revolutionary changes in the primate way of life. Fortunately, the evidence of hunting habits is well preserved on the living floors of prehistoric men, and dramatic discoveries by archeologists in Africa are adding daily to our knowledge of the diet and way of life of these Pleistocene hominids.

To summarize: although it is true that man shares a basic social heritage with the other primates, this similarity is apparent only when monkeys, apes, and men are compared to the other vertebrates. Those features of social life which we recognize as distinctly human -- the family; rules of incest and exogamy; hunting and food-sharing at a home base -- these seem to represent a sharp break between man and the other primates.

SEMINAR 7

38

ON KONRAD LORENZ*

Irven DeVore

I think the real power of a person like Lorenz -- and I think his is a really charming book and well worth reading -- is [that] it helps you see human behavior in a different light and in a different way...But if as Lorenz tends to do, you then impute a common origin to certain behaviors because it helps you see certain parallels, I think you're on dangerous grounds...

When Lorenz is talking about interactions between individuals and small groups he comes closest to having something which we can logically compare to the kinds of studies he's done on animals. Once he moves out of the small face-to-face group situation into trying to understand complex political units and trying to compare them to each other, I think he gets quite naive...I think it's precisely at this level where Lorenz is insufficiently taking into account cultural and social mores. But we know that a perfectly horrible war machine can be mounted by a mild-mannered bureaucrat. Once you reach this complex level of social-political organization, you don't have to have a frenzied move to be aggressive; you're just coldly and calmly producing engines of destruction which, as I say, can be done by a bureaucrat who wouldn't think of striking his own child...If we were arming ourselves only with knives, clubs or whatever, and beating someone to death, there would be very few human beings who would be willing to do this. It becomes far easier if you can, by just pulling your index finger, fire a gun which kills someone whom you can barely see. Worse still if it's on IBM and you push the button, never seeing the effects at all.

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*Excerpts from "Just Published" (Boston, January 18, 1968, Channel 2), a televised discussion of Lorenz's On Aggression between Professor Irven DeVore, Harvard University, and Dr. Richard Sterne, Simmons College, Host of Series.

BABOONS, OR WHY STUDY ANIMALS?

...animal studies may clarify a human problem without proving anything. It may draw attention to facets of human behavior one has not noticed; it may point to a troublemaking but implicity assumption; it may suggest a new principle of human behavior. Furthermore, animal experiments in the past have repeatedly shown that the treatment of some human problem or other has been over simplified...The closer one stays to man's behavior the less one can hope to see its broad outlines. One takes for granted too easily the things that all men have in common without seeing how extraordinary some of them are.

-- D. O. Hebb and W. R. Thompson,
in Handbook of Social Psychology

The behavior of monkeys and apes has always held great fascination for men. In recent years plain curiosity about their behavior has been reinforced by the desire to understand human behavior. Anthropologists have come to understand that the evolution of man's behavior, particularly his social behavior, has played an integral role in his biological evolution. In the attempt to reconstruct the life of man as it was shaped through the ages, many studies of primate behavior are now under way in the laboratory and in the field. As the contrasts and similarities between the behavior of primates and man -- especially preagricultural, primitive man -- become clearer, they should give insights into the kind of social behavior that characterized the ancestors of man a million years ago.

-- S. L. Washburn and Irven DeVore,
"The Social Life of Baboons"

Human kinship is distinctively different from what we find in a primate troop, and is based on a system of classification that is inconveivable without language...A first task is to lead children to recognize explicitly certain basic patterns in a concrete society, patterns they know well in an implicit, intuitive way but which require some special underlining to make them explicit. We plan to use a variety of means to achieve this end... The difficulty with studying social organization is its ubiquity and familiarity. Contrast may be our best way of saving the study of social organization from obviousness -- by comparing our own forms of social organization with those of baboon troops, of Eskimos...

-- Jerome Bruner, Toward a Theory of
Instruction

Seminar 8: Exploring Significant Questions

Man: A Course of Study raises many questions that engage children's interest and lead to new perspectives. This seminar focuses on the question, "Is man innately aggressive?" The method used here to explore this question is the method employed in the course to investigate the question, "What is human about human beings?"

What do various fields of study contribute to the question?
What are the consequences of the different approaches?

Readings: **Irenaus Eibl-Eibesfeldt, "The Fighting Behavior of Animals"**
Leonard Berkowitz, "Impulse, Aggression and the Gun"
Anthony Storr, "Aggression..."
Edmund Leach, "Why Are Some Societies Warlike and Others Peaceful?"
Geoffrey Gorer, "Man Has No 'Killer' Instinct"

1. Participants should have read all the articles on aggression before meeting. Divide into two groups to consider the following points:

   One group reviews the readings for evidence that:

   - aggressive drives have positive effects. What are the positive effects for a species? What are they for an individual?
   - innate aggressive drives are controlled by innate inhibitions to aggression.

   The other group reviews readings for evidence that:

   - aggressive behavior is a response to certain stimuli in the environment.
   - cultural shaping is so powerful that it is difficult to compare human and animal aggression.
   - aggression can be the stimuli for further aggression.
   - inhibitions to aggressive behavior are learned.

2. Reassemble and consider the following questions in terms of both perspectives.

   What is the relationship between war, civil disturbance, and individual aggression?

How is a nation at war different from an individual engaged in a fight?

3. What are the consequences of each of the perspectives?
What are the implications for social policy?
Should a society attempt to provide safe substitutes for violence?
Should we control presentation of violence on television?
Are there implications for gun control?
Whose aggression do we want to control?

4. What are other questions that can benefit most by being considered from varying points of view, each leading to different consequences for action? For example:

Do students learn better in homogeneous groups?
What are varying approaches to this question?
What kinds of evidence is needed for each of the approaches?
What are the consequences of each approach for curriculum and classroom organization?

5. How does a variety of approaches enrich and clarify a question?
Are there questions of particular significance to you that would benefit from this kind of exploration?

SEMINAR 8

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THE FIGHTING BEHAVIOR OF ANIMALS*

Irenaus Eibl-Eibesfeldt

Combat between members of a species serves useful functions. Death or servious injury to a contender is avoided by formal tournaments, the behavior patterns for which appear to be innate in the species.

* * *

Fighting between members of the same species is almost universal among vertebrates, from fish to man. Casual observation suggests the reason: Animals of the same kind, occupying the same niche in nature, must compete for the same food, the same nesting sites and the same building materials. Fighting among animals of the same species therefore serves the important function of 'spacing out' the individuals or groups in the area they occupy. It thereby secures for each the minimum territory required to support its existence, prevents overcrowding and promotes the distribution of the species. Fighting also arises from competition for mates, and thus serves to select the stronger and fitter individuals for propagation of the species. It is no wonder, then, that herbivores seem to fight each other as readily as do carnivores, and that nearly all groups of vertebrates, except perhaps some amphibians, display aggressive behavior.

A complete investigation of fighting behavior must take account, however, of another general observation: Fights between individuals of the same species almost never end in death and rarely result in serious injury to either combatant. Such fights, in fact, are often highly ritualized and more nearly resemble a tournament than a mortal struggle. If this were not the case -- if the loser were killed or seriously injured -- fighting would have grave disadvantages for the species. The animal that loses a fight is not necessarily less healthy or less viable; it may simply be an immature animal that cannot withstand the attack of a mature one.

In view of the disadvantages of serious injury to a member of the species, evolution might be expected to have exerted a strong selective pressure against aggressive behavior. But spacing out through combat was apparently too important to permit a weakening of aggressive tendencies; in fact, aggressiveness seems to have been favored by natural selection. It is in order to allow spacing out -- rather than death or injury -- to result from fighting that the ceremonial combat routines have evolved.

Investigators of aggressive behavior, often strongly motivated by concern

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*Excerpted from Scientific American, December 1961. Copyright © 1961 by Scientific American, Inc. All rights reserved.

about aggressive impulses in man, have usually been satisfied to find its origin in the life experience of the individual animal or of the social group. Aggressiveness is said to be learned and so to be preventable by teaching or conditioning. A growing body of evidence from observations in the field and experiments in the laboratory, however, points to the conclusion that this vital mode of behavior is not learned by the individual but is innate in the species, like the organs specially evolved for such combat in many animals. The ceremonial fighting routines that have developed in the course of evolution are highly characteristic for each species; they are faithfully followed in fights between members of the species and are almost never violated.

All-out fights between animals of the same species do occur, but usually in species having no weapons that can inflict mortal injury. Biting animals that can kill or seriously injure one another are usually also capable of quick flight. They may engage in damaging fights, but these end when the loser makes a fast getaway. They may also "surrender," by assuming a submissive posture that the winner respects. Konrad Z. Lorenz of the Max Planck Institute for the Physiology of Behavior in Germany has described such behavior in wolves and dogs. The fight begins with an exchange of bites; as soon as one contestant begins to lose, however, it exposes its vulnerable throat to its opponent by turning its head away. This act of submission immediately inhibits further attack by its rival. A young dog often submits by throwing itself on its back, exposing its belly; a pet dog may assume this posture if its master so much as raises his voice. Analogous behavior is common in birds: a young rail attacked by an adult turns the back of its head -- the most sensitive part of its body -- toward the aggressor, which immediately stops pecking. Lorenz has pointed out that acts of submission play a similar role in fights between men. When a victim throws himself defenseless at his enemy's feet, the normal human being is strongly inhibited from further aggression. This mechanism may now have lost its adaptive value in human affairs, because modern weapons can kill so quickly and from such long distances that the attacked individual has little opportunity to appeal to his opponent's feelings.

* * *

In the human species, it seems likely, aggressive behavior evolved in the service of the same functions as it did in the case of lower animals. Undoubtedly it was useful and adaptive thousands of years ago, when men lived in small groups. With the growth of supersocieties, however, such behavior has become maladaptive. It will have to be controlled -- and the first step in the direction of control is the realization that aggressiveness is deeply rooted in the history of the species and in the physiology and behavioral organization of each individual.

In this connection, it should be emphasized that aggressiveness is not the only motive governing the interaction of members of the same species. In gregarious animals there are equally innate patterns of behavior leading to mutual help and support, and one may assert that altruism is no less deeply rooted than aggressiveness. Man can be as basically good as he can be bad, but he is good primarily toward his family and friends. He has had to learn in the course of history that his family has grown, coming to encompass first his clan, then his tribe and his nation. Perhaps man will eventually be wise enough to learn that his family now includes all mankind.

IMPULSE, AGGRESSION AND THE GUN

Leonard Berkowitz

Now, more than ever before, there is need to answer the question: what effect do available weapons and vicarious experience with violence have on a person who is 'ready' to commit an aggressive act?

Two series of experiments that my colleagues and I have performed on impulse aggression bear directly on these questions. The first series indicates that even so small a matter as the casual sight of a gun can sometimes stimulate aggressive behavior. The second suggests that, contrary to what the so-called catharsis theory predicts, the sight of violence can increase the chance that a viewer will express aggression himself.

In experiments to test the effect of the presence of guns on aggressiveness, we observed the behavior of 100 students at the University of Wisconsin under different sets of circumstances. Some students were angry and some were not, some saw the guns and some did not. (We did not reveal the study's real purpose, claiming instead to be measuring the students' physiological reaction to stress.)

The stress, we informed them, would be a series of one or more mild electric shocks. We asked each student to make a list of ideas a publicity agent could use to improve the record sales and public image of a popular singer. Then we gave each student a 'partner', ostensibly another experimental subject but actually an ally of the experimenter. The pretend partner's task was to evaluate the student's publicity ideas. If the partner thought the student's ideas were very good, he would give him one electric shock; if he thought the student's work was bad, he would administer up to 10 shocks. Later, the student would be asked to evaluate a similar task of his partner's, and to convey his judgment in the same way.

By prearrangement with the experimenter, the partners gave one shock to half the students and seven shocks to the other half, regardless of the quality of the students' ideas. We assumed that the seven-shock students would feel physically uncomfortable and that they would feel humiliated as well. They were our angry group.

After each student had received the number of shocks allotted to him, the experimenter invited him to trade places with his partner and led him into the room containing the shock machine. The telegraph key that would send the shocks lay on a table at one end of the room. Sometimes the

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*Extracts from "Impulse, Aggression and the Gun," Psychology Today, September, 1968. Reprinted with the permission of Psychology Today magazine.

table was empty except for the key; at other times, badminton racquets and shuttlecocks (neutral objects) lay near the key. At still other times, the table held a 12-gauge shotgun and a snub-nosed .38 revolver.

The experimenter acted surprised at the sight of the guns and the racquets and explained that they had been "left over from another experiment." Matter-of-factly, he moved them aside. The students seemed to pay little or no attention to them. Later, after the experiment was over, the experimenter asked each student what, if any, suspicions the student had felt. No doubts were voiced about the presence of the weapons.

Next, the experimenter showed the student his partner's "work" (actually prepared in advance and uniform for all partners). He reminded the student that he should use shocks to indicate his evaluation of his partner's work and he told the student that this was the last time shocks would be administered in the study.

As we suspected, the presence of the guns affected both the number of shocks the students gave their partners and how long they held the key down for each shock. Some differences between groups were less clear-cut than others; from a statistical point of view, our most significant finding was that the angry men who saw the guns gave more shocks than any other group.

Both common sense and personality theory tend to neglect the "weapons effect" that this study demonstrates. Instead, the stress motives and, perhaps, psychological and social dislocations. What is often overlooked, perhaps because it is a frightening idea, is that much violence is impulsive. It is not primarily planned, purposeful activity; neither is it the "inevitable" result of internal drives or maladjustments. These things set the stage and help carry the action forward, but in many cases it is also important that there be a stimulus or immediate cue to trigger aggression.

It is quite conceivable that many hostile acts which supposedly stem from unconscious motivation really arise because of the operation of aggressive cues. The aggression can even be thought of as a conditioned response to the stimulus. If a gun can be that stimulus, then it is a double-barreled threat -- an immediate cue that also presents the aggressor with a deadly means of aggression.

* * *

Anger may not always be necessary in aggressive behavior, but it certainly facilitates it. And our society offers its citizens a wide array of anger-producing frustrations. It is not necessary to detail them here. It should be mentioned, though, that aggression is more likely to result from unrealized hopes than from deprivation alone. The deprived person who has no hope cannot really be said to be frustrated, because he does not really have a goal he is trying to move toward. A person works harder to get something -- whether it is food, a sexual object, or a new car -- if he thinks he has a chance. Similarly, his frustration is most severe when he is blocked from a satisfaction he thinks should and could be his.

* * *

Even given high frustration and an immediate cue, violence will not erupt unless there is a third factor as well: low inhibitions. The "normal" level of inhibitions to violence in our society is not particularly high. We take a lenient attitude toward what is sometimes called defensive aggression. It is quite permissable, even admirable, for a man to defend with vigor not only himself but his family, his home and his country, and not only his physical safety but his principles of honor, law and democracy. Even defensive aggression that is quite violent and smacks more of revenge than defense tends to be seen as an act of courage, a mark of manhood.

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Fictional representations of violence are often defended, by people in the industries that sell them and also by many consumers, on the groups that they serve a cathartic purpose. The theory, loosely derived from Aristotle's view of the function of tragedy, contends that violence which is indulged in vicariously drains a reservoir of accumulated hostility and releases tensions that might otherwise explode into actual violent behavior.

This theory receives additional support from the ideas and writings of the eminent ethnologist, Konrad Lorenz...behavior results, he says, from the spontaneous accumulation of some excitation or substance in neutral centers. He believes that "present-day civilized man suffers from insufficient discharge of his aggressive drive," and he recommends that society provide people with "safe" ways of venting their aggressive urge.

The question is, do vicarious or real-but-innocuous "outlets" in fact reduce the chances that aggressive behavior will occur? Although many psychologists continue to subscribe to the catharsis theory in some form, many others believe (and have demonstrated in experiments) that witnessed violence can stimulate actual violence and that a little aggression, like a snowball, can gather momentum and grow.

Let us examine the results of another series of studies. In this series, a group of students was made angry by ridicule and electric shock. Then, just before it was their turn to administer shocks, they were shown one of two movies. One was an exciting but nonviolent foot race between the first two men to run the mile in less than four minutes. The other was a violent scene from Champion, the Kirk Douglas movie in which the prize fighter played by Douglas absorbs a brutal beating in the ring.

The students who saw this movie had been given two different plot summaries to prepare them for the scene. Half were led to regard the beating as justified: Douglas was a heel who had it coming. The other half heard a summary that was much more sympathetic to Douglas: it was clear that he he did not deserve what he got.

The filmed violence was not cathartic; in fact, it had an opposite effect, at least on the students who thought the beating was justified. When given a chance to administer shocks to the partners who earlier had delivered shocks to them, these students responded with more aggression than any other group. Rather than feeling purged of their hostility, the students seemed to feel freer to express it. It was as if the justified aggression on the screen justified as well their own aggression against their tormenters.

* * *

Results like this present an awkward problem to TV and movie censorship agencies, and to producers who want to make violent films without encouraging real violence. The modern censorship agencies generally insist that crime and violence be used not just to entertain but to teach a lesson -- "crime does not pay," for example. How the lesson should be taught is left vague; scriptwriters usually follow the maxim of "an eye for an eye."

But justified aggression is precisely the kind that seems likeliest to encourage the expression of aggression by members of the audience.

The effect is different if violence, though justified, seems excessive. If the punishment is badly out of proportion with the victim's crime, all aggression becomes less acceptable to the viewer, and his inhibitions rise. When some of the angry students who saw the boxing film were told that the fight had very serious results -- Douglas was carried to his dressing room and died there -- the scales that had been unbalanced by Douglas' villainy tipped the other way. These students gave fewer shocks to their experimental partners than those who were told the beating merely taught Douglas a lesson and induced him to reform.

In some ways, this is an encouraging finding. It means that viewed violence does not necessarily encourage actual violence. It can either lower inhibitions or raise them, depending on the viewer's interpretation of what he sees. Horror is an inhibiting emotion, and violence that strikes the viewer as disproportionate -- as "too much" or "too real" -- is likely to arouse horror...

However, the line between violence that is justified and unjustified, fictional and real, uninhibiting and inhibiting, is anything but clear...

At some point on the continuum, viewed violence stops horrifying and starts exciting. Once this point has been reached, vicarious experience with aggressiveness begins to lower restraints against the real thing...

The social implications of the research I have described are clear, though they are much easier to recite than to act on. A society that wants fewer violent outbreaks should reduce frustration, leave inhibitions intact and remove immediate cues that can set off aggressive acts.

Reducing frustration in the United States, especially the frustration of social groups, is a long-term project that is receiving considerable attention. I will do no more here than recall the phrase "revolution of rising expectations" and mention that, for many, people, expectations are likely to outstrip reality for a long time to come.

Leaving more of people's inhibitions against aggressiveness intact is, I think, a slightly less difficult matter. Is it really necessary to use violence as a major source of entertainment? The catharsis theory does not hold up very well, and the frontier tradition may not be as strong as we think...

The third possibility, reducing the number of aggressive stimuli people encounter from day to day, is probably the easiest one to effect, and the fastest. This may seem a surprising statement -- deciding to remove aggressive stimuli from American life is a little like setting out to clean the Augean stable. But the task seems more manageable when one realizes that most aggressive stimuli fall into only a few large categories, one of the largest of which bears the label "Guns." Guns not only permit violence, they can stimulate it as well. The finger pulls the trigger, but the trigger may also be pulling the finger.

HUMAN AGGRESSION*

Anthony Storr

...it is probable that when no outside stimulus for aggression exists, men actually seek such stimuli out in much the same way as they do when sexually deprived...There can be no doubt that men enjoy the enlivening effect of being angry when they can justify it, and that they seek out opponents whom they can attack in much the same way that cichlid fish do...If the view is accepted that aggression is, equally with sexuality, a basic part of human instinctive equipment, it must be possible to demonstrate that the aggressive drive serves a biological function in terms both of the preservation of the individual and the preservation of the human species... The same aggressive impulse which can lead to strife and violence also underlies man's urge to independence and achievement...

...If we are to control aggression, it is important to determine whether there is, in animals or humans, an internal accumulation of aggressive tension which needs periodic discharge, or whether the aggressive response is simply a potential which need never be brought into use. If the first supposition is true, what is needed to control aggression is the provision of suitable outlets for aggression. If the latter is true, what is required is the avoidance of all stimuli which might arouse the aggressive response.

WHY ARE SOME SOCIETIES WARLIKE AND OTHERS PEACEFUL?**

Edmund Leach

The initial act of war is political, a move in the complex game of diplomatic chess. The manipulation of public opinion and the maintenance of public morale in the face of military adversity, is, of course, a very essential part of the same game, but warfare is never 'caused' by the public in any simple sense. That is why the Ardrey/Storr/Frank assumption that warmaking by a nation-state is a kind of equivalent to 'territorial' behavior among, say, prairie dogs is so totally misleading. In a nation at war most individuals are not engaged in aggressive activity at all...

* * *

But do not let us forget that even if we are born as animals, we grow up as men. It is right that the psychologists and ethnologists should remind us of our 'instinctive' beginnings, but we should not exaggerate the virulence of our original sin. What we need to understand is not what is true of all mankind but what is true of some men and not of others. Why are some societies warlike and others peaceful?

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*Anthony Storr, Human Aggression (New York: Atheneum, 1968).

**From "Ignoble Savages," New York Review, October 10, 1968, pp. 28, 29.

SEMINAR 8

52

MAN HAS NO 'KILLER' INSTINCT*

Geoffrey Gorer

...The most important statement, almost without question, about this aspect of human nature made in this century is that contained in the recent book of the ethologist Konrad Lorenz, translated into English under the title, "On Aggression." He shows that all the carnivores, the mammals which kill other species for their food, have innate inhibitions (instincts, if the term be preferred) against killing members of their own species, with two exceptions -- rats and men. The animals with potentially lethal teeth, claws or horns can be automatically stopped from pressing an attack on a fellow member of the species by signs of submission, either flight or some physical analogue to raising the hands or showing the white flag. Once the species-specific signs of submission are made, the attacker automatically halts; he literally cannot kill his defeated rival.

Dr. Lorenz argues that there is an evolutionary connection between the larger carnivores' lethal physical equipment and the innate inhibitions against using this equipment on fellow members of the same species. In comparison, man is physically ill-equipped; his teeth and nails are not adapted to killing large animals of other species; and even his strong and clever hands could seldom be used on healthy beasts. It has indeed been argued that very early man, away from the seacoasts, relied on carrion for his protein. Since man is so physically ill-equipped for killing, he did not acquire the built-in inhibitions against killing other men as part of the evolutionary protection of the species, as wolves or tigers did for their co-specifics. And then he invented weapons.

To avoid confusion, it should be emphasized that for all carnivores, including man, killing other species of animals for food is innately of a different nature from killing members of the same species for rivalry or jealousy or pleasure. In animals, there is no connection between hunting and ferocity toward members of their own species.

...Exceptionally among carnivores, rats do sometimes kill other rats. Rats live in packs or hordes; and (still following Dr. Lorenz) they do not fight seriously with, much less kill, members of the same pack. But they are quite merciless to members of alien packs; they kill them slowly and painfully and (if one wishes to be anthropomorphic) they seem to get pleasure from so doing. They share our lack of built-in inhibitions against killing members of the same species.

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*Excerpted from The New York Times Magazine, November 27, 1966. © 1966 by the New York Times Company. Reprinted by permission.

The analogy with human beings is almost total. Human beings also live in packs (in most cases the pack is the society) and the killing of other members of the pack is always forbidden (save, occasionally, under carefully defined rules) and typically subject to very severe sanctions; but this ban and these sanctions do not usually apply to members of other packs. As is well known, very many primitive tribes have only a single word to designate members of the tribe and human beings; they alone are fully human, members of other packs are (so to speak) subhuman, and killing them is not murder. This primitive type of rat-thinking is never far below the surface, even among the civilized and sensitive.

Where human beings differ from rats is in their very varying definitions of who shall be included within the pack...

For most of humanity, the tribe is the unit within which killing is considered murder, and outside which killing may be a proof of manhood and bravery, a pleasure and a duty. Such killing may be done by individuals -- head-hunters, scalp-collectors, as part of a vendetta or raid -- or by groups; in the latter case the killing is called "warfare". The differences in quality and scope between tribal warfare and modern war between nation-states are so great that it might be useful if different words were used for the two activities...

The evidence could be endlessly multiplied to demonstrate that man, as a species, has no inhibitions against killing his fellow men who do not belong to the same pack, however the pack may be defined, and often gets intense pleasure and a sense of pride from so doing. But to admit this is not the same as positing a "killer instinct" as part of man's hereditary endowment. There is no logical reason for hypothesizing such an instinct, and some arguments, to be advanced shortly, against doing so...

There are...a few societies where men seem to find no pleasure in dominating over, hurting or killing the members of other societies, where all they ask is to be at peace and to be left in peace. These societies are, of course, small, weak, technologically backward, and living in inaccessible country; only so could they survive the power-seeking of their uninhibited neighbors...

Among these gentle societies are the Arapesh of New Guinea, mentioned earlier; the Lepchas of Sikkim in the Himalayas (whom I studied); and, most impressive of all, the pygmies of the Ituri rain-forest in the Congo, studied by Colin Turnbull. These small societies (there are several others), living in the most inaccessible deserts and forests and mountains of four continents, have a number of traits in common, besides the fact that they do not dominate over, hurt, or kill one another or their neighbors, though they possess the weapons to do so. Many of them, including the pygmies and the Lepchas until a couple of generations ago, rely almost exclusively on hunting for their protein food.

What seems to me the most significant common traits in these peaceful societies are that they all manifest enormous gusto for concrete physical pleasures -- eating, drinking, sex, laughter -- and that they all make very little distinction between the ideal characters of men and women, particularly that they have no ideal of brave, aggressive masculinity.

Men and women have different primary sexual characteristics -- a source of endless merriment as well as more concrete satisfactions -- and some different skills and aptitudes. No child, however, grows up with the injunctions, "All real men do..." or "No proper woman does...," so that there is no confusion of sexual identity: no cases of sexual inversion have been reported among them. The model for the growing child is of concrete performance and frank enjoyment, not of metaphysical symbolic achievements or of ordeals to be surmounted. They do not have heroes or martyrs to emulate or cowards or traitors to despise; their religious life lacks significant personalized gods and devils; a happy, hard-working and productive life is within the reach of all.

As far as the history of these small tribes can be reconstructed, they have always chosen to retreat into ever more inaccessible country rather than stand their ground and fight with invaders. There is no reason to suppose that their psychological or physiological potentialities are different from those of their more aggressive neighbors, but their values certainly are; for them peace and the absence of quarreling and jealousy are far more important than a reputation for bravery and virility. And while the tribes are not broken up, it is likely that these values will continue to prevail. When the tribes are broken, individuals, unsupported by the traditional ethics, might easily revert to rat-pack mentality...

It seems possible that the youth international, which has developed, nearly the whole world over, in the last generation, has inarticulately sensed the necessity to redefine the concepts of "a real man" and "a true woman" if we are not to destroy ourselves completely. The long hair, dandified dress and pleasantly epicene features (which so infuriate their elders) are a physical repudiation of the ideal of aggressive masculinity which has been traditional in all their societies in recent generations, and which is still maintained by the conventional and the neo-Facists (white supremacists, Empire loyalists, Birchites, and the like) in the same societies.

Even idiotic slogans such as "Make love, not war" (as if the two activities had ever been incompatible!) and the use of drugs make the same point. Mankind is safer when men seek pleasure than when they seek the power and the glory.

If the members of the youth international -- the beats and the swingers, the provos and the stilyagi -- maintain the same scale of values and the same sex ideals 20 years hence when they themselves are middle-aged and parents, then they may, just possibly, have produced a permanent change in the value systems and sex roles of their societies, which will turn the joy of killing into an unhappy episode of man's historic past, analogous to human sacrifice, which ascribed joy in killing to the gods also.

The attempts to devise a social unit more inclusive than the nation-state, a brotherhood of man, have all been unsuccessful to date. It is just possible that the youth international, with its emphasis on shared sensual pleasure and its repudiation of the ideal of truculent "manliness", may succeed where the grandiose schemes of idealists have always failed. For man has no "killer instinct"; he merely lacks inhibitions.

Seminar 9: Models as Ways of Knowing and Learning

In an age of technological sophistication and political revolution, why study the traditional lives of the Netsilik Eskimos? The answer lies in the usefulness of models as a means of learning and interpreting experience. Material on the Netsilik -- their relations with the natural environment, their rules and customs for getting along with one another, their knowledge and beliefs about the universe -- is used by each student as he slowly builds a model of society and how it works.

The Netsilik were a small society with a technology and social organization less complex than our own. This simplicity is an aid to intellectual model building. Students can see clearly the various parts of Netsilik society and understand how they relate one to the other.

A course on man must deal with society and with culture. The Netsilik materials allow the student to build a formal model of society, a model that will increase in complexity as the child grows and gains knowledge about the social world. Because of its formal representation of reality, it will function, as many models do, to organize what is known and to guide the search for new knowledge. The building and use of intellectual models rests on man's most unique capacity -- symbolic thought.

Film: "Fishing at the Stone Weir," Part I

Booklet: A Journey to the Arctic

Seal Hunting Game Boards (one board for each six players)
Seal Hunting Record Charts
Seal Hunting Seal Meat Stickers

Filmstrip: "Netsilik Life," Frames 1-4

Netsilik photomural: "The Netsilik Family Outside a Tent"

Teachers' Guides:
The Netsilik Eskimos at the Inland Camps
The Netsilik Eskimos on the Sea Ice
Talks to Teachers, "Man in the Social World"

1. The photomural introduces the family featured in most of the Eskimo films. They are Itimangnark (ity-MAHNG-nark) the husband, Kingnuk (KING-nook) his wife, Umiapik (oo-MY-apik) their son.

2. Watch the first eight minutes of the film "Fishing at the Stone Weir."

   Which aspects of family life seem universally human?
   Are these "universals" due to biological similarities in the species or to something else?
   Did anything in the film surprise you?
   Has the experience of teaching the course changed your reaction to the Netsilik? (Think back to Seminar 1.)
   Did you organize the data in this film with specific concepts in mind?

3. The film showed the "reality" of a Netsilik family. Look at the family diagram on pages 23-24 of At the Inland Camps. After studying it, diagram your own family and exchange diagrams with someone else to see if the diagram can be correctly interpreted.

   Which aspects of reality does a model like this include? What does it omit?
   How does the selective nature of a model emphasize certain aspects of reality and ignore or deemphasize others?
   Does the diagram organize your conception of family in a new way?

4. The Netsilik materials are organized around the annual migration of Itimangnark and his brother Irkowagtok. Look at frame #1 of the filmstrip and locale of the fish weir seen in the film. Look at frame #2, noting that during the autumn, Itimangnark is joined by his cousin, Ugak. Frames #3 and #4 show the routes of two families not related to the main characters.

   At what time of the year do the Netsilik live in small family groups?
   When do they live in large communities?
   How is a map a model of reality? What aspects of reality does it emphasize? Why is it important to teach mapping skills?

Note: The annual migration cycle of the Netsilik Eskimos is covered in large part in Man: A Course of Study. Fishing in summer, caribou-hunting in early autumn and ice-fishing in late fall are discussed in the teachers' guide The Netsilik Eskimos at the Inland Camps and accompanying materials for children. The time covered is from late July through November. The Netsilik Eskimos on the Sea Ice begins with the move from land to the ice of Pelly Bay. The Netsilik spend several months on the ice -- December through April when the hunting is good -- but they move from one location to another in search of seals, building new igloo communities at each stop. The life of the Netsilik in late spring and early summer (not discussed in the course) takes place on land, although while there is ice the men still go out to hunt seal. The early part of summer is spent repairing equipment, fishing sporadically and hunting small animals when food supplies dwindle.

5. The family is the focal unit at the inland camps; the large community is the main unit of the camps on the sea ice. The family was explored through the model of the kinship diagram; the winter community will be explored through the model of a hunting game.

   a. Review the film, "Winter Sea Ice Camp," Part I, seen in Seminar 1.
   b. Read about seal hunting on pages 28-31 of A Journey to the Arctic, a booklet adapted for children from the writings of the famous explorer Knud Rasmussen.
   c. Elect six people (five hunters and one referee) to play the Seal Hunting game, using directions on pages 44-49 of On the Sea Ice. Watch while they play for at least five days. Then break into groups so everyone can play.
   d. Play the game for a second time -- this time thinking about a strategy for keeping all players alive and reasonably well fed.
   e. Contrast the two playings of the game. What new strategies were learned? Did players act differently toward one another if they decided to share?
   f. The dialogs that follow this seminar represent inappropriate use of the game in classrooms. Discuss in each instance what the teacher should have done in the situation.

6. As conclusion, reflect on ways each model (family diagram, map, seal hunting game) represented reality.

   What can be learned from each model?
   What other models do we use in teaching?

7. The data and concepts of the Netsilik Eskimo unit are useful in building another kind of model -- one that exists in the mind -- of society and its workings:

> Other societies may not be better than our own; even if we believe them to be so we have no way of proving it. But knowing them better does none the less help us to detach ourselves from our own society. It is not that our society is absolutely evil, or that others are not evil also; but merely that ours is the only society from which we have to disentangle ourselves. In doing so, we put ourselves in a position to attempt the second phase of our undertaking: that in which, while not clinging to elements from any one particular society, we make use of one and all of them in order to distinguish those principles of social life which may be applied to the reform of our own customs, and not of those societies foreign to our own. In relation to our own society, that is to say, we stand in a position of privilege which is exactly contrary to that which I have just described; for our own society is the only one which we

> can transform and yet not destroy, since the changes which we should introduce would come from within.
>
> -- Claude Levi-Strauss, Tristes Tropiques

What are the advantages, as suggested by Levi-Strauss, of "detachment" in forming such a model?
Why must we have a model of society in mind before we can "reform...our own customs," i.e., improve our own society?

Dialogs

The teacher introduced the game exactly as suggested in the lesson plan and then the following question was raised and she responded.

S. Should we choose one place and all hunt together?

T. Of course you should. That way, you could cover most of the holes in a seal's range.

* * *

After the game had been in operation for a while, the teacher came across a group where one child was 'starving.'

S. Teacher, I don't have any food, and Billy, he has plenty. Make him give me some so I won't die. We want our group all to stay alive.

T. Well you'd better share immediately if you want to stay alive.

* * *

As the teacher observed one group, she noted out of the corner of her eye one boy reach over and steal some seal stickers from the pile in front of a very successful hunter. The successful hunter had not noticed the missing seal yet. Walking over to the boy she said,

T. Johnny, you must leave the room because you cheated.

* * *

One boy has been extremely lucky/skillful in finding seals and has never been hungry in three games. He is rather loud in his braggadocio.

S. I got another one. I'm the greatest hunter in the class.

S. Oh be quiet, you're just lucky. You're not so smart.

S. I got it figured out. I know the way to do it. It's just that I am smart enough. And you are not. That's why you can't get any seals.

T. I want no unnecessary talking. Play the game and talk only when absolutely necessary.

Note: Parents of your students might enjoy joining you for the next seminar, "Learning by Doing: The Value of Experience."

Seminar 10: Learning by Doing: The Value of Experience

> When we experience something we act upon it, we do something with it; then we suffer or undergo the consequences. We do something to the thing and then it does something to us in return: such is the peculiar combination. The connection of these two phases of experience measures the fruitfulness or value of the experience. Mere activity does not constitute experience.
>
> -- John Dewey, Democracy and Education

Man, in contrast to other animals, adapts to his world by acting upon it, by reshaping it into forms that will serve his special purposes. The Netsilik Eskimo films dramatically illustrate this unique human capacity. In Man: A Course of Study there are many lessons which encourage the development of creativity and active problem-solving skills (environment boards, technology exercises, games, etc.). The purpose of this seminar is to examine the relationship between the development of active problem-solving skills in the classroom and the use of those skills as a continuing human activity.

How does learning with the hands and body relate to learning with the head?

Why are these two domains so often separated in school? Should they be?

What does learning of this kind have to do with preparation for adult life?

Film:	"At the Autumn River Camp," Part II
Booklet:	The Data Book
Miscellaneous Materials:	Tongue depressors, paper, string
Teachers' Guide:	Talks to Teachers, "Why Technology in a Study of Man?"
Readings:	John Dewey, "Experience and Thinking"

1. Spend the first twenty minutes of the seminar inventing a tool, game, toy or musical instrument from the materials supplied, working by choice either individually or in pairs.

   What properties of materials were revealed by the various inventions?
   What skills were used to create the inventions? Can ideas be regarded as skills?
   How did you acquire or develop the ideas and skills represented? Are they inherited or learned? If learned, were they learned in school or elsewhere?
   Do these ideas and skills relate in any way to those used in other aspects of your life?
   What value is there for children in this exercise?

2. Watch the film "At the Autumn River Camp," Part II, for application of technical skills. Examine especially the making of the skin sled.

   What skills are used in the creation of this sled?
   What special properties of the materials used are exploited in solving the sled-making problem? How is the environment used? Can you think of other solutions?
   How does this solution relate to other problems the Netsilik have to solve in order to survive?
   How do Netsilik children acquire the skills and problem-solving techniques represented here?
   How is skill development and problem solving in Netsilik culture similar to or different from the way these human capabilities are acquired in our own lives?

3. Reread Dewey on "Experience and Thinking." Divide in small groups and discuss:

   What does Dewey mean by "experience"? How does he distinguish between experience and what he calls "mere activity"?
   What are the implications of Dewey's views for the organization of motivation? How would he teach Man: A Course of Study?
   Would Bruner disagree with Dewey's views on the relationship between experience and thought?

4. Reassemble as a group. Consider the implications of the discussion for the reorganization of schools.

   What internal changes would be necessary to make possible the kinds of instruction suggested in this seminar?
   What new ties to the community would have to be developed to bring about a closer communication between life in the classroom and the "real world" outside?

EXPERIENCE AND THINKING*

John Dewey

I. The Nature of Experience. The nature of experience can be understood only by noting that it includes an active and a passive element peculiarly combined. On the active hand, experience is trying -- a meaning which is made explicit in the connected term experiment. On the passive, it is undergoing. When we experience something we act upon it, we do something with it; then we suffer or undergo the consequences. We do something to the thing and then it does something to us in return: such is the peculiar combination. The connection of these two phases of experience measures the fruitfulness or value of the experience. Mere activity does not constitute experience. It is dispersive, centrifugal, dissipating. Experience as trying involves change, but change is meaningless transition unless it is consciously connected with the return wave of consequences which flow from it. When an activity is continued into the undergoing of consequences, when the change made by action is reflected back into a change made in us, the mere flux is loaded with significance. We learn something. It is not experience when a child merely sticks his finger into a flame; it is experience when the movement is connected with the pain which he undergoes in consequence. Henceforth the sticking of the finger into flame means a burn. Being burned is a mere physical change, like the burning of a stick of wood, if it is not perceived as a consequence of some other action.

Blind and capricious impulses hurry us on heedlessly from one thing to another. So far as this happens, everything is writ in water. There is none of that cumulative growth which makes an experience in any vital sense of that term. On the other hand, many things happen to us in the way of pleasure and pain which we do not connect with any prior activity of our own. They are mere accidents so far as we are concerned. There is no before or after to such experience; no retrospect nor outlook, and consequently no meaning. We get nothing which may be carried over to foresee what is likely to happen next, and no gain in ability to adjust ourselves to what is coming -- no added control. Only by courtesy can such an experience be called experience. To "learn from experience" is to make a backward and forward connection between what we do to things and what we enjoy or suffer from things in consequence. Under such conditions, doing becomes a trying; an experiment with the world to find out what it is like; the undergoing becomes instruction -- discovery of the connection of things.

Two conclusions important for education follow. (1) Experience is primarily an active-passive affair; it is not primarily cognitive. But (2) the measure of the value of an experience lies in the perception of relationships or continuities to which it leads up. It includes cognition in the degree in which it is cumulative or amounts to something, or has meaning. In schools, those under instruction are too customarily looked upon as acquiring knowledge as theoretical spectators, minds which appropriate knowledge by direct energy of intellect. The very word pupil has almost come to mean one who is engaged not in having fruitful experiences but in absorbing knowledge directly. Something which is called mind or consciousness is severed from the physical organs of activity. The former is then thought to be purely intellectual and cognitive; the latter to be an irrelevant and intruding physical factor. The intimate union of activity and undergoing its consequences which leads to recognition of meaning is broken; instead we have two fragments: mere bodily action on one side, and meaning directly grasped by "spiritual" activity on the other.

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*From Democracy and Education (New York: Macmillan, 1916, 1944), pp. 139-144.

It would be impossible to state adequately the evil results which have flowed from this dualism of mind and body, much less to exaggerate them. Some of the more striking effects, may, however, be enumerated. (a) In part bodily activity becomes an intruder. Having nothing, so it is thought, to do with mental activity, it becomes a distraction, an evil to be contended with. For the pupil has a body, and brings it to school along with his mind. And the body is, of necessity, a wellspring of energy; it has to do something. But its activities, not being utilized in occupation with things which yield significant results, have to be frowned upon. They lead the pupil away from the lesson with which his "mind" ought to be occupied; they are sources of mischief. The chief source of the "problem of discipline" in schools is that the teacher has often to spend the larger part of the time in suppressing the bodily activities which take the mind away from its material. A premium is put on physical quietude; on silence, on rigid uniformity of posture and movement; upon a machine-like simulation of the attitudes of intelligent interest. The teachers' business is to hold the pupils up to these requirements and to punish the inevitable deviations which occur.

The nervous strain and fatigue which result with both teacher and pupil are a necessary consequence of the abnormality of the situation in which bodily activity is divorced from the perception of meaning. Callous indifference and explosions from strain alternate. The neglected body, having no organized fruitful channels of activity, breaks forth, without knowing why or how, into meaningless boisterousness, or settles into equally meaningless fooling -- both very different from the normal play of children. Physically active children become restless and unruly; the more quiescent, so-called conscientious ones spend what energy they have in the negative task of keeping their instincts and active tendencies suppressed, instead of in a positive one of constructive planning and execution; they are thus educated not into responsibility for the significant and graceful use of bodily powers, but into an enforced duty not to give them free play. It may be seriously asserted that a chief cause for the remarkable achievements of Greek education was that it was never misled by false notions into an attempted separation of mind and body.

(b) Even, however, with respect to the lessons which have to be learned by the application of "mind," some bodily activities have to be used. The senses -- especially the eye and ear -- have to be employed to take in what the book, the map, the blackboard, and the teacher say. The lips and vocal organs, and the hands, have to be used to reproduce in speech and writing what has been stowed away. The senses are then regarded as a kind of mysterious conduit through which information is conducted from the external world into the mind; they are spoken of as gateways and avenues of knowledge. To keep the eyes on the book and the ears open to the teacher's words is a mysterious source of intellectual grace. Moreover, reading, writing, and figuring -- important school arts -- demand muscular or motor training. The muscles of eye, hand, and vocal organs accordingly have to be trained to act as pipes for carrying knowledge back out of the mind into external action. For it happens that using the muscles repeatedly in the same way fixes in them an automatic tendency to repeat.

The obvious result is a mechanical use of the bodily activities which (in spite of the generally obtrusive and interfering character of the body in mental action) have to be employed more or less. For the senses and muscles are used not as organic participants in having an instructive experience, but as external inlets and outlets of mind. Before the child goes to school, he learns with his hand, eye, and ear, because they are organs of the process of doing something from which meaning results. The boy flying a kite has to keep his eye on the kite, and has to note the various pressures of the string on his hand. His senses are avenues of knowledge not because external facts are somehow "conveyed" to the brain, but because they are used in doing something with a purpose. The qualities of seen and touched things have a bearing on what is done, and are alertly perceived; they have a meaning. But when pupils are expected to use their eyes to note the form of words, irrespective of their meaning, in order to reproduce them in spelling or reading, the resulting training is simply of isolated sense organs and muscles. It is such isolation of an act from a purpose which makes it mechanical. It is customary for teachers to urge children to read with expression, so as to bring out the meaning. But if they originally learned the sensory-motor technique of reading -- the ability to identify forms and to reproduce the sounds they stand for -- by methods which did not call for attention to meaning, a mechanical habit was established which makes it difficult to read subsequently with intelligence. The vocal organs have been trained to go their own way automatically in isolation; and meaning cannot be tied on at will. Drawing, singing, and writing may be taught in the mechanical way; for, we repeat, any way is mechanical which narrows down the bodily activity so that a separation of body from mind -- that is, from recognition of meaning -- is set up. Mathematics, even in its higher branches, when undue emphasis is put upon the technique of calculation, and science, when laboratory exercises are given for their own sake, suffer from the same evil.

(c) On the intellectual side, the separation of "mind" from direct occupation with things throws emphasis on things at the expense of relations or connections. It is altogether too common to separate perceptions and even ideas from judgments. The latter are thought to come after the former in order to compare them. It is alleged that the mind perceives things apart from relations; that it forms ideas of them in isolation from their connections -- with what goes before and comes after. Then judgment or thought is called upon to combine the separated items of "knowledge" so that their resemblance or causal connection shall be brought out. As matter of fact, every perception and every idea is a sense of the bearings, use, and cause, of a thing. We do not really know a chair or have an idea of it by inventorying and enumerating its various isolated qualities, but only by bringing these qualities into connection with something else -- the purpose which makes it a chair and not a table; or its difference from the kind of chair we are accustomed to, or the "period" it represents, and so on. A wagon is not perceived when all its parts are summed up; it is the characteristic connection of the parts which makes it a wagon. And these connections are not those of mere physical juxtaposition; they involve connection with the animals that draw it, the things that are carried on it, and so on. Judgment is employed in the perception; otherwise the perception is mere sensory excitation or else a recognition of the result of a prior judgment, as in the case of familiar objects.

Words, the counters for ideals, are, however, easily taken for ideas. And in just the degree in which mental activity is separated from active concern with the world, from doing something and connecting the doing with what is undergone, words, symbols, come to take the place of ideas. The substitution is the more subtle because some meaning is recognized. But we are very easily trained to be content with a minimum of meaning, and to fail to note how restricted is our perception of the relations which confer significance. We get so thoroughly used to a kind of pseudo-idea, a half perception, that we are not aware how half-dead our mental action is, and how much keener and more extensive our observations and ideas would be if we formed them under conditions of a vital experience which required us to use judgment: to hunt for the connections of the thing dealt with.

There is no difference of opinion as to the theory of the matter. All authorities agree that that discernment of relationships is the genuinely intellectual matter; hence, the educative matter. The failure arises in supposing that relationships can become perceptible without experience -- without that conjoint trying and undergoing of which we have spoken. It is assumed that "mind" can grasp them if it will only give attention, and that this attention may be given at will irrespective of the situation. Hence the deluge of half-observations, of verbal ideas, and unassimilated "knowledge" which afflicts the world. An ounce of experience is better than a ton of theory simply because it is only in experience that any theory has vital and verifiable significance. An experience, a very humble experience, is capable of generating and carrying any amount of theory (or intellectual content), but a theory apart from an experience cannot be definitely grasped even as theory. It tends to become a mere verbal formula, a set of catchwords used to render thinking, or genuine theorizing, unnecessary and impossible. Because of our education we use words, thinking they are ideas, to dispose of questions, the disposal being in reality simply such an obscuring of perception as prevents us from seeing any longer the difficulty.

Seminar 11: Intuitive and Analytic Thinking

Analytic thinking is a step-by-step, carefully reasoned process, whereas intuitive thinking proceeds in spurts and seems to rest on an implicit perception of the total problem. After engaging in analytic thought, a person can describe what he did and why he did it. Intuitive thought, on the other hand, is often followed by comments such as, "Suddenly it just leapt into my mind and I don't know where it came from."

The two processes are complementary and each strengthens the other. In this seminar, participants learn about caribou hunting through a film and a game before considering the contribution of intuitive and analytic thinking to their learning experiences.

Film:	**"At the Caribou Crossing Place," Part II**
Booklets:	**Antler and Fang** **A Journey to the Arctic**
Poster:	**"Hunting Caribou at a Crossing Place"**
Caribou Hunting Game Maps **Direction Indicators (dice)** **"Rules for Caribou Hunting with Bow and Arrow"** **"Rules for Caribou Hunting at a Crossing Place"**	
Teachers' Guide:	**The Netsilik Eskimos at the Inland Camps**
Reading:	**Jerome S. Bruner, "Analytic and Intuitive Thinking"** **J. Hanley, et al., "Simulation Games: Opportunity for Analytic and Intuitive Thought"**

1. Review Antler and Fang and speculate on methods of hunting the caribou.

   What time of year would be best for hunting?
   What tools would be useful?

2. Assemble in groups of three, each group with "Rules for Caribou Hunting with Bow and Arrow," Caribou Hunting maps, and one pair of Direction Indicators. (See At the Inland Camps, pages 47-49, for instructions for introducing the game.) In groups, play the game once.

What have you learned about the behavior of caribou?
Where is the best place for a hunter to begin?
Which strategies are most successful for this hunting?
What aspects of caribou hunting are emphasized in this simulation of reality?

3. The favorite Netsilik technique for caribou hunting was to frighten the caribou herds into water and spear them from kayaks. The poster "Hunting Caribou at a Crossing Place" shows the role of beaters, kayakers and inukshuks. Briefly discuss the cooperation and timing required in this kind of caribou hunting as opposed to bow and arrow hunting.

4. Show the film. Be sure everyone has time for comment.

   What is your reaction to the film?
   What other experiences make you feel the same way?
   What ways do you have for coping with your feelings about the hunting scenes?
   How will your students respond? How can you prepare them for the film? (Or, do you choose not to show it?)
   What will you do in class after showing the film? How will you use the September 4 entry in A Journey to the Arctic?

5. Prepare to play "Hunting Caribou at a Crossing Place" by electing one group to read the rules and letting others watch as they play a demonstration game. (Instructions for teaching the game are on pages 56-59 of At the Inland Camps.)

6. After each group has played one game, discuss the strategy each employed.

   Where is the best place to put inukshuks? Kayaks?
   What cooperative agreements between hunters are necessary for successful hunting?
   What are the advantages of crossing-place hunting over bow and arrow hunting?

7. Review the Bruner article, "Analytic and Intuitive Thinking," and reflect on your playing of the game.

   When did you use intuitive thought? When did you use analytic thought? Did the games encourage one or the other? Did the film?
   Which educational materials in other subjects encourage intuitive or analytic thinking? Do we as teachers encourage one more than the other? What are the advantages and disadvantages of each kind of thinking?
   Are you especially good at one or the other? Has it caused you difficulties?

8. Review "Simulation Games: Opportunity for Analytic and Intuitive Thought." Plan a simulation game based on the migration cycle or on fishing at the weir. (If there is insufficient time to complete this, several people might work on it in their classrooms.) Suggested sequence for design of a game:

    Review existing games (hunting games and games such as Monopoly) for ideas and methods.
    Define model of Netsilik "reality" to be simulated.
    Invent method for players to interact with "reality," make decisions, encounter change, gain feedback on their actions.
    Produce game in playable form.
    Test, revise, test. PLAY!

ANALYTIC AND INTUITIVE THINKING*

Jerome S. Bruner

One can say many more concrete things about analytic thinking than about intuitive thinking. Analytic thinking characteristically proceeds a step at a time. Steps are explicit and usually can be adequately reported by the thinker to another individual. Such thinking proceeds with relatively full awareness of the information and operations involved. It may involve careful and deductive reasoning, often using mathematics or logic and an explicit plan of attack. Or it may involve a step-by-step process of induction and experiment, utilizing principles of research design and statistical analysis.

In contrast to analytic thinking, intuitive thinking characteristically does not advance in careful, well-defined steps. Indeed, it tends to involve maneuvers based seemingly on an implicit perception of the total problem. The thinker arrives at an answer, which may be right or wrong, with little if any awareness of the process by which he reached it. He rarely can provide an adequate account of how he obtained his answer, and he may be unaware of just what aspects of the problem situation he was responding to. Usually intuitive thinking rests on familiarity with the domain of knowledge involved and with its structure, which makes it possible for the thinker to leap about, skipping steps and employing short cuts in a manner that requires a later rechecking of conclusions by more analytic means, whether deductive or inductive.

The complementary nature of intuitive and analytic thinking should, we think, be recognized. Through intuitive thinking the individual may often arrive at solutions to problems which he would not achieve at all, or at best more slowly, through analytic thinking. Once achieved by intuitive methods, they should if possible be checked by analytic methods, while at the same time being respected as worthy hypotheses for such checking. Indeed, the intuitive thinker may even invent or discover problems that the analyst would not. But it may be the analyst who gives these problems the proper formalism.

* * *

For a working definition of intuition, we do well to begin with Webster: "immediate apprehension or cognition." "Immediate" in this context is contrasted with "mediated" -- apprehension or cognition that depends on the intervention of formal methods of analysis and proof. Intuition implies the act of grasping the meaning, significance, or structure of a problem or situation without explicit reliance on the analytic apparatus of one's craft. The rightness or wrongness of an intuition is finally decided not by intuition itself but by the usual methods of proof. It is the intuitive mode, however, that yields hypotheses quickly, that hits on combinations of ideas before their worth is known. In the end, intuition by itself yields a tentative ordering of a body of knowledge that, while it may generate a feeling that the ordering of facts is self-evident, aids principally by giving us a basis for moving ahead in our testing of reality.

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*Reprinted by permission of the publishers from The Process of Education (Cambridge, Mass.: Harvard University Press, Copyright 1960 by the President and Fellows of Harvard College), pp. 57-58, 60, 61, 62-63, 64, 65.

Obviously, some intuitive leaps are "good" and some are "bad" in terms of how they turn out. Some men are good intuiters, others should be warned off.

* * *

What variables seem to affect intuitive thinking?...It seems unlikely that a student would develop or have confidence in his intuitive methods of thinking if he never saw them used effectively by his elders. The teacher who is willing to guess at answers to questions asked by the class and then subject his guesses to critical analysis may be more apt to build those habits into his students than would a teacher who analyzes everything for the class in advance. Does the providing of varied experience in a particular field increase effectiveness in intuitive thinking in that field? Individuals who have extensive familiarity with a subject appear more often to leap intuitively into a decision or to a solution of a problem -- one which later proves to be appropriate.

* * *

In this connection we may ask whether, in teaching, emphasis upon the structure or connectedness of knowledge increases facility in intuitive thinking. Those concerned with the improvement of the teaching of mathematics often emphasize the importance of developing in the student an understanding of the structure or order of mathematics. The same is true for physics. Implicit in this emphasis, it appears, is the belief that such understanding of structure enables the student, among other things, to increase his effectiveness in dealing intuitively with problems.

* * *

Should students be encouraged to guess, in the interest of learning eventually how to make intelligent conjectures? Possible there are certain kinds of situations where guessing is desirable and where it may facilitate the development of intuitive thinking to some reasonable degree. There may, indeed, be a kind of guessing that requires careful cultivation. Yet, in many classes in school, guessing is heavily penalized and is associated somehow with laziness. Certainly one would not like to educate students to do nothing but guess, for guessing should always be followed up by as much verification and confirmation as necessary; but too stringent a penalty on guessing may restrain thinking of any sort and keep it plodding rather than permitting it to make occasional leaps.

* * *

...But let us not confuse ourselves by failing to recognize that there are two kinds of self-confidence -- one a trait of personality, and another that comes from knowledge of a subject. It is no particular credit to the educator to help build the first without building the second. The objective of education is not the production of self-confident fools.

Yet it seems likely that effective intuitive thinking is fostered by the development of self-confidence and courage in the student. A person who thinks intuitively may often achieve correct solutions, but he may also be proved wrong when he checks or when others check on him. Such thinking, therefore, requires a willingness to make honest mistakes in the effort to solve problems. One who is insecure, who lacks confidence in himself, may be unwilling to run such risks.

SEMINAR 11

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SIMULATION GAMES: OPPORTUNITY FOR ANALYTIC AND INTUITIVE THOUGHT*

Janet Hanley, Dean Whitla, Eunice Moo, Arlene Walter

There are two major ways of linking games to learning. One is to take an existing game which everyone understands and graft subject matter onto it. There are numerous simple "game models" which can be played with school tasks as the required behavior. They range from giving a point to the first one to finish a given task (a speed game) to Twenty Questions, Hollywood Squares, Charades, College Bowl and any other game one is clever enough to adapt to school learning tasks. These games are termed "motivational games," as the game is quite deliberately irrelevant to what is to be learned and is used simply as a motivating device.

The other major way of linking games to learning is to take a model of some social process and make it into a game. Usually this involves only attaching some kind of scoring scheme to the actions of the players as they play various roles in the social process. Such games are termed "simulation games." There are simulation games based on models of such situations as: labor-management relations, legislative process, political party conventions, parent-child relations, and competition for careers, to name just a few.

The hypothetical mechanism by which a player learns from a simulation game is well characterized as follows:

> Each simulation is built around a theoretical model. The model makes it possible for the simulation participants to encounter "reality"; they make decisions which are "fed into" the model, and the model produces "feedback" for the participants outlining the consequences of their decisions. In each of several time periods, there are similar cycles of planning...deciding...putting the decisions into the model...receiving feedback from the model...and beginning a new cycle with planning, etc.**

A simulation game, thus, is a context in which a student can try out his ideas, translate his verbal learning into overt actions, and find out the consequences of his actions. The critical feature of a simulation game is the validity of the simulation, the validity of the model. It must provide for actions by the players which are as similar as possible to real actions in the actual situation. It must provide feedback recognizably linked to an action and qualitatively similar to that of an analogous action in the real situation. The point system, if one exists, is used merely to increase the clarity of the feedback or to adjust the feedback to compensate for unrealistic aspects of the model.

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*From Curiosity, Competence, Community; An Evaluation of Man: A Course of Study, Vol. II (Cambridge: Education Development Center, Inc., 1970), pp. IV 71-IV 73.

**NAPOLI (La Jolla, California: Western Behavioral Sciences Institute, 1965).

In contrast to the motivational game, the simulation game involves the interaction of several variables at once, a cumulative series of interactions over a series of rounds, and usually a variety of possible ways of acting, not just one which is judged right or wrong.

* * *

In [educational] games, children are part of an on-going process. What they do affects the outcome of the game, and they can experiment directly with the nature of the medium by changing the strategies or the rules of the game to see which approach "works" better. The essence of the simulation games' contribution to a curriculum is that for the first time, the children have to take the factors they have studied independently as static entities and deal with them as parts of a process. They have to manipulate and coordinate the variables simultaneously over a period of time, under the tension and excitement of the game. They must use what they have been taught in a new and inter-related way. Frequently, the games do not add new knowledge so much as they integrate and make functional that which has already been learned.

Seminar 12: Finding Out What Students Have Learned

It is as difficult to assess learning as it is to promote it. Students learn at different rates, even different things, from the same lesson. For years teachers have resorted to paper and pencil tests of factual information -- not because they liked these tests -- but because they were easy to administer in the classroom situation and were easily quantifiable. This seminar focuses on two methods to find out what students are thinking and learning: the small-group interview and integrative projects (projects that combine elements of the course to produce an expression of an idea that is the student's own).

Film: "At the Caribou Crossing Place," Part II

Record: "Words Rise Up," Kaluarsuk

Poster: "Hunting Caribou at a Crossing Place"

Booklet: Antler and Fang

Reading: Janet Hanley, "Listening and Learning: The Interview as an Evaluation Method"

1. Review the poster "Hunting Caribou at a Crossing Place" for aspects of the hunting technique not clear in the film. Note the two hunters, the two beaters, the position of the kayaks on the shore of the lake, the inukshuks placed to frighten the herd into the water.

2. Watch parts of the film.

   Did you feel differently on this second viewing of the film?
   Did playing the caribou hunting game affect your reaction to the film?

3. Listen to "Kaluarsuk" on the record "Words Rise Up."

   What does this legend add to the film's depiction of hunting?
   What caused Kaluarsuk to change so dramatically in his hunting ability?
   What kinds of things might Netsilik children learn from listening to tales such as this?

4. Discuss the interview (see readings that follow) as a means of finding out what students are thinking and learning from the course. Review the sample "bad" and "good" questions.

5. Working individually or in pairs, teachers plan an interview to find out what students have learned from the film and record. While preparing, think about the following:

   What do you want to find out? (fact, concept, opinion/feeling)
   Do the questions point to some predetermined response? (When did you stop beating your wife?)
   What questions would you ask as probes or follow-ups to the main set of questions?
   Would the questions on the Kaluarsuk story asked above be appropriate for use with your students?

6. Teachers conduct interviews with one another and revise their questions or question-sequence as a result of this trial.

   How does the interview differ from the teacher-guided discussion?
   In the interview, what is the teacher listening for? How does this differ from what the teacher listens for in class discussion?

7. Divide participants into small groups to design a paper-and-pencil integrative project that will measure students' learning from this film/record sequence. This project might be creating a play, a poem, an illustrated short story, a comic strip, newspaper article, a game, or a primer for Eskimo children. Each group will list its goals, design one project and ask another group to perform it. Some possible things to be assessed:

   Knowledge of the Netsilik method of hunting at a crossing place
   Contrast between ways animals hunt and human beings hunt (See book Antler and Fang)
   Students' feelings about Netsilik hunting

8. When each group has designed a project and performed one, discuss those that are especially good at finding out what people have learned.

   What are good techniques for assessing conceptual learning instead of factual learning?
   Is factual learning important? If so, how assess it?
   What are good ways to assess children's feelings?
   Which projects test a general verbal ability instead of learning relevant to the course?

9. To summarize the seminar, consider the following:

   What are the advantages of the interview from the student's point of view? From the teacher's point of view?

What are the advantages of the project from the teacher's point of view? From the student's point of view?
How does the interview differ from the integrative project?
Does grading and ranking of students require different evaluation methods from the methods appropriate for providing feedback to the teacher? Which of the earlier questions was especially good for grading purposes?

10. When teachers use interviews and integrative projects in their own classes, they might tape-record sessions or bring in projects to share with the seminar group.

Note: The next seminar is particularly interesting to other teachers. You might invite the sixth-grade teachers to join you next time

LISTENING AND LEARNING: The Interview as an Evaluation Method

Janet Hanley*

> Tests are only hard when you know that somebody else is going to get mad at you when you don't do it right.
>
> -- A Fifth-grader

While we were evaluating Man: A Course of Study teachers often asked us how they could assess their students' progress in the course without resorting to formal tests of objective or short-answer format.

The course instigates a process of inquiring and a curiosity and concern about the human condition that grow out of many components of its materials, and that culminate in the acquisition of some general and shared concepts and attitudes. Standard measures of learning are not appropriate for this course, because they do not permit the teacher to explore in depth and with consistent format the ideas and feelings that may be set brewing when children work with these new, multi-faceted classroom materials.

We began to think that our more flexible and evocative evaluation devices might serve the classroom teacher more effectively than a series of written instruments. Thus this attempt to introduce the interview as a possible strategy both teachers and students might enjoy.

One reason the interview may be particularly useful to teachers in the upper elementary grades is that many children of this age are more articulate orally than in writing. A teacher who does not want to rely on traditional objective or short-answer tests has few "formal" methods for evaluation available that are suitable. Children have little ability to reveal the scope and depth of their thinking by written answers to open-ended essay questions. What they really are thinking and learning becomes much clearer in the open-ended interview, because they are able to expand their thoughts in ways not accessible to them when they must resort to written expression. Also, the ideas in Man: A Course of Study are best expressed in responsive, interactive situations.

Interviewing: A New Role

An enjoyable and important aspect of interviewing is that the classroom teacher can step back from the demands of the teaching role and become a learner, a listener. There are other occasions in the classroom when the teacher can listen to children with no resort to "monitoring" their ideas. But in the interview the teacher does no "teaching," makes no corrections, suggests no further examples or illustrations, passes no judgment on mode of presentation. It is a time when children can, in essence, "tell it like it is."

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*Janet Hanley directed the evaluation of Man: A Course of Study.

Attentive listening and questioning produce the best interviews; this is when children reveal the full range of their thinking and feeling. Thus they give us one basis for making a fair assessment of what they take with them from this course. When children of this age are asked for opinions, asked to judge materials, asked to clarify ideas, they usually respond with great zest. They care a great deal about being treated as "grown-ups," about displaying competence and about showing their grasp of a subject area -- in fact, they often show an assimilation of detail that is awe-inspiring!

The sample interviews attached show ways children respond in small group situations and highlight some of the dimensions that the teacher might want to assess in the interviews, such as:

> group interaction: do children listen to each other, build upon their own statements, help each other summarize?
>
> content and concept mastery: do children have trouble giving examples of certain topics or explaining them?
>
> response to materials and activities: is there consensus on the particular booklets, films or exercises that helped them learn most and were enjoyed most? Does this help you understand your own teaching better?

Introducing the Interview

In a small group interview used for oral assessment, the teacher must put the children as much at ease as possible. An atmosphere unlike that of a traditional classroom test helps draw out the best ideas that children have. One way to create the relaxed mood is for the interviewer to introduce himself in his new role thus:

> When you work in groups or when discussions are going on, I don't get as good an opportunity as I'd like to hear the ideas and opinions of each of you.
>
> So I thought we could gather in small groups so that you could talk about the course. I'd like to hear more of your personal opinions and ideas on this course.
>
> I'd like to hear your thoughts about some of the ideas of this course. Many of them are very new and not always easy at first. Maybe you can help me to understand what ideas you personally don't find clear, and what you think we need to spend more time or less time doing.
>
> If we all give our thoughts, then you will be helping me to make this a better course for others who will be studying it next year.

Mechanics of the Interview

We suggest that children be interviewed in groups of three or four for about 20 minutes while the rest of the class pursues other activities.

As you start each interview, some simple explanation of procedure may be necessary. Children should know that this is not a time for raising hands -- this is a chance to talk among themselves, discussing the questions you put to them. As long as they speak one at a time, there are no fixed rules of procedure -- just a normal flow of conversation.

The primary function of the interviewer is to set the stage and control the pace of the conversation. During the interview, there should be no correction of children's statements. Often, the children correct each other, but the listener should (however difficult it may be) refrain from "teaching."

To avoid the problem of the child who wants to monopolize the interview, it should be made clear that each student has a turn at answering a question, with elaborations following from the rest of the group. In this way the interviewer also gets a clearer sense of the personal knowledge and attitudes of each child.

You may want to have a few sets of questions that you alternate among groups, so that a new kind of "test-wiseness" doesn't take over. Perhaps one or two of the questions you feel are most important could be common to all interviews.

The interviewer should keep an interested but unevaluative facial expression (if possible!) so that children will not perceive what he wants or expects to hear. Later, when listening to the tape, there will be ample opportunity for groaning, flinching or smiling at the comments and statements the students make.

Teachers who experiment with this type of interview should have access to a tape recorder. Listening later to the tape of the session is the only successful means of assessing the statements each child makes. It is impossible for an interviewer to hear and remember all the comments made by all the children in the group. And with the knowledge that the conversation is being recorded for later use, the interviewer can concentrate on guiding a productive discussion.

Examples of Good and Bad Interview Questions

Questions on materials:

Poor:	Did you enjoy the film on the chimpanzee?	Allows for one-word rather than in-depth response. "Enjoy" is leading word -- generally precludes possibility of negative response.

Better:	How did the film on the chimpanzee compare with the other films you have seen so far?	Question sets up problem which can then be dealt with by child in whichever way he chooses -- responses will often be content-oriented.

Questions on content:

Poor:	What do we mean by innate behavior?	Requires definition as response. Sets up test-like situation.
Poor:	What are the innate behaviors of a herring gull?	Asks for straignt recall.
Better:	If someone said to you that human and herring gull parents are very much alike, what would you say?	Comparative illustrations sought. Less test-like in tone.
Better:	How would you explain to someone the difference between innate and learned behavior?	Requires illustrative explanation with the child in a responsible role.

Questions on attitude toward Netsilik:

Poor:	In what ways is the Netsilik family like yours.	Leading question.
Better:	Does the Netsilik family seem like your family in any way?	Less leading. Permits more range of response.

Interview Transcript: Urban School

Interviewer: What's the difference that you see between when the salmon's a little baby and when the baboon's a baby? What's the difference?

Robert: Oh, the baboon needs his mother, and the salmon doesn't.

Jimmy: Salmon can go without his mother... They wouldn't survive anyways, because they'd be doing a lot like reproducing and everything. They have to die. They'd be going upstream.

Robert: I can't pronounce that name, exhaustion.

Interviewer: Exhaustion.

Robert: Yeah, I can't pronounce it. I think it's exjawyun.

Interviewer: Do you think most of the baboon's behavior is innate or do you think it's learned?

Jimmy: Learned.

Robert: Learned.

Interviewer: Why do you say that?

Robert: Because we haven't heard one thing that was innate yet.

Interviewer: What kinds of things would be innate?

Robert: Like the herring gull, it goes at the red from its mother because its mother has a red beak and he starts picking it. That's innate behavior.

Jimmy: What's learned behavior?

Robert: When the mother teaches it to stay away from danger. Like stay away from a lion.

Jimmy: I think innate means to like each other.

Robert: No, innate behavior, that means not learned.

Interview Transcript: Suburban School

Interviewer: What have you liked best so far?

Roxanne: I liked the baboons better than the salmon because they... the salmon never knew their parents. It seems so strange to have just everything they can live with, you know. They just know everything and do it and they have the urge to swim downstream and swim upstream and they have to. It seems such a tiresome life. And it doesn't seem like the salmon plays -- that they have any contact with each other except when they're mating -- you know, the eggs and everything. But they really don't. Baboons, they play with each other and they have contact with each other. They give warning calls and they care about each other. But the salmon, it doesn't seem as if they care at all.

Interviewer: What about the herring gull. Where would they fit in?

Roxanne: Well,...they don't really. The parents are really the only ones who sort of care for them. They feed them but, you see, the baboons learn, you know -- they wouldn't feed them. They feed them because they have the instinct when they are pecked, they have to regurgitate food. But they wouldn't feed them otherwise. And the territories -- if the chick wanders out of its territory it would be killed by another one. And it doesn't seem like they care about because they would kill each other just if they were out of the territory.

Interviewer: What's the reason for that?

Roxanne: They want to protect their young? They don't want strangers around. Baboons, they learn. They do much more.

Karen: And they do more things.

Roxanne: I think the salmon learns the least, then the herring gull and then the baboon, and then the Eskimo! And it's going to be all a step higher!

Karen: So far I like the baboon better because they learn more. Salmon, all they have is instinct and urge.

Roxanne: They are more like us. It seems like the salmon are not very clever. I guess they do this because they have an instinct and not because they want to. I'm sure. It seems like they are sort of captive. Someone's holding their brain and sort of telling them you have to swim upstream and you have to do this and they don't have, like, their own free will.

Interview Transcript: Suburban School, Netsilik unit

Interviewer: O.K., I want to show you some cards. Think of the words (fear, love, friendship, beliefs, family, dreams). Which two do you associate with the Eskimos and their life and why?

Karen, Edie, Jimmy: Beliefs.

Karen: I think love, love and beliefs.

Edie: Belief.

Karen: And something else. Family.

Edie: No, beliefs and friendship, because you can, you know, they share...

Karen: I don't think friendship has, they only know most of their relatives, they're almost suspicious of strangers. I think "fear," because they're almost suspicious of strangers.

Jimmy: Oh, but that is dumb.

Karen: They have a fear of lightning, they're scared of things like that.

Edie: That's a belief, that they're scared of lightning.

Karen: Yeah, I guess so, but I take "love."

Jimmy: No, beliefs and family.

Edie: Beliefs and family or beliefs and friendship.

Karen: I don't think so, because you can love a family, or friend, or a stranger. Love is, how they're, they wouldn't have a culture if they were not that associated with love because...

Jimmy: They wouldn't have a culture if they weren't family, because the man needs the wife and the wife needs the man.

Karen: All right. But they need love.

Edie: They need friendship.

Jimmy: Friendship?

Edie: Not to be a husband and wife, but I mean, if you say "family," you kind of associate with your friends.

Karen: I don't think so.

Edie: It all depends on your description of families.

Karen: I don't think so. Actually...

Edie: I mean, a family can be a friend, but a friend can't be a member of the family.

Jimmy: Yes he can.

Karen: Ah, I don't know. We had friends that would come over to the house, and they're just like the family, a member of the family, but they're not...

Edie: That's friendship, it's always friendship, because...

Karen: Well, I'm not going to be friends with my brother; I love him, I'm not going to be friends with him.

Edie: I don't love mine.

Karen: I'll be enemies with him any...

Interviewer: You're not friendly with the people you love?

Edie: Yeah, but that's not me. My brother cheats in Monopoly.

Jimmy: My brother doesn't cheat; he just beats me up all the time.

Karen: My brother's always, my mother says never to hurt him, because he's sort of sick, but still I don't think that has anything to do with what we're talking about because love has, their whole culture is associated with love, if the man didn't love his wife they wouldn't have a child, and you wouldn't have...

Edie: But they have to live that way, they've got to have someone to support them so they will have a child. What happens when they grow old, and then... Even if they don't love each other, they're going to have one.

Karen: But you've got to.

Edie: You don't have to love.

Karen: You do.

Jimmy: But the child is part of the family.

Karen: Correct.

Jimmy: You've got to support them.

Interviewer: What's the opinion here?

Karen: Love. Love.

Jimmy: I don't think so. You love your family, you don't family your love.

Interviewer: What other one would you choose, Karen, besides love?

Karen: I'd say beliefs.

Jimmy: And I'd say, "family and beliefs."

Edie: [illegible] ay, "friendship and beliefs."

Jimmy: We've got a three-way tie here.

Interviewer: One more question. Did you see any films that made you admire the Eskimos?

Jimmy: The way he hunted animals, the way he hunted the caribou.

Karen: Yes, that one, and the way he cut them up.

Edie: Yes, and his knowledge and how he gets the beater, I mean, knowing where the caribous are going to come, and then judge, "Well, you know they're going south, but where do you think they'll approximately go." I mean, "Will they go through a narrow crossing place or a wide one." Their knowledge for that...

Jimmy: I think they're just kind of, you know, I think they encourage a little kid, I mean, maybe they taste good, but when he ate that eye ball I really got sick.

Interviewer: Is there anything that made you dislike this Eskimo?

Karen: I think he's, he's not fickle, but he's sort of like that, because he doesn't pay attention to the guys that do him any good, he doesn't even have very many, he's always giving his services to the gods who can do something for him, and he's not feeding, well, not feeding, he's not loving the gods who make happiness, he's trying to make the gods that cause hardship and junk, make them be nice to him. I think that he should make the good guys be nice to him, not the bad ones.

Jimmy: They already are nice.

Edie: The story, like when he hid the fish in the castle, he must have been... Not generous.

Jimmy: See, there's a story about a man, and his sharing partner it's in *Stories of the Netsilik Eskimos* I think, not *Stories and Songs* but just plain *Stories*, and he becomes friends with his sharing partner, but the man is lame, and then during caribou hunting time he's O.K., you know, he's good for a kayak, or he hunts them real well, but when it comes time for the seal-hunting time, he knows that he's no good, so he just leaves him out there, and the next-door neighbor takes pity on him, and he turns out to be a great hunter, if you take him across the ice in a sled thing, and when the guy that used to be able to hunt well with the caribou came to them he had not had good hunting while hunting the seals, so the other guy that was lame shared with him, and they said, "Isn't it nice to have a good sharing partner?" And I thought that was really very good.

Karen: I think that the Eskimo has a bunch of humor, but some of the ways he treats friends and junk, are the exact same way we do, and I always think of them as a generous people, but you know, when you hear about them doing, ah, but then on the other hand I mean, like Kunok said, "A man must decide what he has to store, and what he can afford to give away," so I don't...

Jimmy: But I mean, seven parts of a big beautiful trout...

Interviewer: Thanks very much.

Seminar 13: What Kinds of Learning Take Place in Group?

Although learning is sometimes a solitary endeavor, it is often a process shared with others. In Man: A Course of Study there is opportunity for learning in groups both small and large. Why do we find such pleasure in these activities?

> ...a word about one last intrinsic motive that bears closely upon the will to learn. Perhaps it should be called reciprocity. For it involves a deep human need to respond to others and to operate jointly with them toward an objective...its exercise seems to be its sole reward. Probably it is the basis of human society, this response through reciprocity to other members of one's species. Where joint action is needed, where reciprocity is required for the group to attain an objective, then there seem to be processes that carry the individual along into learning, sweep him into a competence that is required in the setting of the group. We know precious little about this primitive motive to reciprocate, but what we do know is that it can furnish a driving force to learn as well.
>
> -- Jerome S. Bruner, Toward a Theory of Education

What are the values of hypothesizing?
What are the values of formulating and exchanging opinion?
What are the values of tieing the materials to the experiences of students?

Teacher Education Film:	"The Birth of a Hunter"
Booklets:	This World We Know A Journey to the Arctic The Data Book
Teachers' Guide:	Talks to Teachers, "World View"
Reading:	Jerome S. Bruner, "Expository and Hypothetical Modes" _____, "Encouraging the 'What If?' Question"

1. Briefly discuss the readings.

   Which activities in the course so far have fostered the expository or the hypothetical mode?
   How can you use the "What if?" question to promote hypothesizing by your students?

2. Up to the first fadeout, discuss the kinds of thinking that the children engage in.

   What was the teacher's first question? Would you have asked a different question?
   Were there examples of hypothesizing on the part of students?
   Did the teacher encourage one mode or the other?
   Did the materials encourage one mode or the other?
   Why is it important for children to think not only in terms of what exists but also in terms of what might be possible?

3. See the remainder of the film, and consider the consequences of the way the class is grouped.

   Which students seemed to benefit most from discussion?
   Which students did not take part? Why not?
   Could this lesson be taught in small groups? What kind of structuring would be necessary? What would have been gained and lost?
   Was the teacher a necessary guide to discussion? a necessary source of information?
   Should a lesson like this be "individualized"?

4. To consider further the differences between learning in groups and individual learning, divide into three teams -- each to work for about 30 minutes on one of the following assignments:

   Group I: Discuss specific instances in which the filmed lesson seemed to achieve the aims of the course. The stated aims on which evaluation was based are as follows:

   1. To initiate and develop in youngsters a process of question-posing (the inquiry method);
   2. To teach a research methodology where children can:
      a. Look for information to answer questions they have raised,
      b. Use the framework developed in the course (e.g., the concept of the life cycle) and apply it to new areas;
   3. To help youngsters to develop the ability to use a variety of firsthand sources as evidence from which to develop hypotheses and draw conclusions;

4. To conduct classroom discussions in which youngsters learn to listen to others as well as to express their own views;
5. To legitimize the search; that is, to give sanction and support to open-ended discussions where definitive answers to many questions are not found;
6. To encourage children to reflect on their own experiences;
7. To create a new role for the teacher, in which the teacher becomes a resource to children, rather than only an authority.

-- Curiosity, Competence, Community
pp. 15-16

Group II: Plan a lesson focusing on the question, "Why are there rules and ceremonies surrounding births?" keeping in mind this finding in the evaluation of Man: A Course of Study.

> Group work and the dyadic pattern of working with one friend were overwhelmingly preferred to solitary endeavors. Very few liked to work best with the teacher's help, or in one big group. This probably reflects the developmental level of this age group, where task accomplishment in company of peers is a particularly satisfying way of working.

-- Curiosity, Competence, Community
p. 130.

Consider questions you might pose, as well as activities and materials to explore them. Include in the lesson children's own experiences, their interest in the religious aspect of the story and their previous learning about the life cycles of other animals. Think about human birth and how it is different from birth in any other species. What customs and beliefs in our own society mark birth as a cultural as well as a biological event? (The sections on "Souls and Spirits" and "The Ancient Rules of Life" in This World We Know are useful resources here.)

Group III: Collect information on the question, "How does the Netsilik belief in souls enable them to control uncertainty in their lives?" The following materials will be useful in this research:

Talks to Teachers, "World View"; "The Netsilik Eskimos"
A Journey to the Arctic, May 30, "A Boy's First Seal";
    August 8, "Rules for Fishing Time"; September 5, "Rules for Caribou-Hunting Time"
The Data Book, "Magic Words" and "Amulets"

This World We Know, "Souls and Spirits" and "Ancient Rules of Life"

6. When groups have completed assignments, each group reports its activities to the other groups.

Which assignments were conducive to working alone, in small groups, or large groups?
Which grouping techniques are appropriate for:
    -exchanging points of view?
    -solving a common problem?
    -pooling information?
    -conducting factual research?
How can children be encouraged to formulate and test hypotheses? Consider the nature of the assignment and the materials used.

Note: In the days before the next seminar, collect representative samples of students' writing and artwork on the Netsilik Eskimos. They will be used as source material for a discussion in Seminar 14.

EXPOSITORY AND HYPOTHETICAL MODES*

Jerome S. Bruner

First, I should be clear about what the act of discovery entails. It is rarely, on the frontier of knowledge or elsewhere, that new facts are "discovered" in the sense of being encountered, as Newton suggested, in the form of islands of truth in an uncharted sea of ignorance. Or if they appear to be discovered in this way, it is almost always thanks to some happy hypothesis about where to navigate. Discovery, like surprise, favors the well-prepared mind. In playing bridge, one is surprised by a hand with no honors in it and also by one that is all in one suit. Yet all particular hands in bridge are equiprobable: to be surprised one must know something about the laws of probability. So too in discovery. The history of science is studded with examples of men "finding out" something and not knowing it. I shall operate on the assumption that discovery, whether by a schoolboy doing it on his own or by a scientist cultivating the growing edge of his field, is in its essence a matter of rearranging or transforming evidence in such a way that one is enabled to go beyond the evidence so reassembled to new insights. It may well be that an additional fact or shred of evidence makes this larger transformation possible. But it is often not even dependent on new information.

Very generally, and at the risk of oversimplification, it is useful to distinguish two kinds of teaching: that which takes place in the expository mode and that in the hypothetical mode. In the former, the decisions concerning the mode and pace and style of exposition are principally determined by the teacher as expositor; the student is the listener. The speaker has a quite different set of decisions to make: he has a wide choice of alternatives; he is anticipating paragraph content while the listener is still intent on the words; he is manipulating the content of the material by various transformations while the listener is quite unaware of these internal options. But in the hypothetical mode the teacher and the student are in a more cooperative position with respect to what in linguistics would be called "speaker's decisions." The student is not a bench-bound listener, but is taking a part in the formulation and at times may play the principal role in it. He will be aware of alternatives and may even have an "as if" attitude toward these, and he may evaluate information as it comes. One cannot describe the process in either mode with great precision of detail, but I think it is largely the hypothetical mode which characterizes the teaching that encourages discovery.

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*Reprinted by permission of the publishers from On Knowing: Essays for the Left Hand (Cambridge, Mass.: The Belknap Press of Harvard University Press, Copyright 1962 by the President and Fellows of Harvard College), pp. 82-83.

ENCOURAGING THE "WHAT IF?" QUESTION*

Jerome S. Bruner

Let me illustrate by a concrete instance. A fifth grade class was working on the organization of a baboon troop -- on this particular day, specifically on how they might protect against predators. They saw a brief sequence of film in which six or seven adult males go forward to intimidate and hold off three cheetahs. The teacher asked what the baboons had done to keep the cheetahs off, and there ensued a lively discussion of how the dominant adult males, by showing their formidable mouthful of teeth and making threatening gestures, had turned the trick. A boy raised a tentative hand and asked whether cheetahs always attacked together. Yes, though a single cheetah sometimes followed behind a moving troop and picked off an older, weakened straggler or an unwary, straying juvenile. "Well, what if there were four cheetahs and two of them attacked from behind and two from in front. What would the baboons do then?" The question could have been answered empirically and the inquiry ended. Cheetahs _don't_ attack that way, and so we don't know what baboons _might_ do. Fortunately, it was not. For the question opens up the deep issues of what might be and why it isn't. Is there a necessary relation between predators and prey that share a common ecological niche? Must their encounters have a "sporting chance" outcome? It is such conjecture, in this case quite unanswerable, that produces rational, self-consciously problem-finding behavior so crucial to the growth of intellectual power.

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*Reprinted by permission of the publishers from _Toward a Theory of Instruction_ (Cambridge, Mass.: The Belknap Press of Harvard University Press, Copyright 1966 by the President and Fellows of Harvard College), pp. 158-159.

Seminar 14: The Role of Fantasy and Feeling in Learning

Encouraging children to think imaginatively and to express feelings is vital to the development of humanness. Here we probe one of the most sensitive and least understood aspects of growth and learning. Many course materials will engage children's feelings and imaginations -- from the harshness of animal killing to the poetic charm of the Netsilik myths and the warmth of family life.

When children's feelings are aroused, do they think better or is their objectivity clouded?
What is the place of imagination and creative expression in the classroom? How can these aspects of growth be best encouraged and developed?
How can we use the creative expression of other people to gain deeper insights into their lives?

Record:	**Words Rise Up**
Booklets:	**The Many Lives of Kiviok** **The World We Know** **Songs and Stories of the Netsilik Eskimos**
Other Materials:	**Students' stories, poems and drawings about the Netsilik Eskimos**
Readings:	**Richard Jones, "We Learn Best When We Care Most"**

1. Begin seminar by listening to poem "Hunger." Read aloud This World We Know, page 25. Consider especially the introduction:

   > We do not believe, we fear, for the world is a dangerous place. We fear the spirits great and small. We fear the weather and sickness and gathering. We fear hunger in the snow.

   How can a knowledge of Netsilik fears help us to understand the way Eskimos behave:
   - toward animals?
   - toward each other?
   - toward children?
   - toward the unknown?

What are the fears that dominate our own lives and how do they determine behavior at home, at school and in the society outside of school? Are children's fears different from those of adults?

How is fear related to learning? Can identification with the fears of others help children understand the behavior of others? How does fear operate in the classroom either to provide or obstruct learning? How do teachers deal with fear in children?

What other emotions are engaged in the learning process? Can materials and teaching techniques be used to engage children's emotions in such a way as to promote productive learning?

2. Divide into two groups. Members of the frist group reread Songs and Stories of the Netsilik Eskimos and The Many Lives of Kiviok and look at illustrations in This World We Know. Choose one poem, story or drawing and consider it in terms of the following questions.

What features of Netsilik life are stressed in the poem, story or drawing?

What does the story reveal about the feelings of an author or artist toward Netsilik life?

Members of the second group read student stories and poems and look at drawings brought in from classwork.

How does creative expression of children help them to grow personally and to develop new perceptions and questions about Netsilik life?

How can you use students' writings and drawings to guide your teaching?

Can you isolate misconceptions? Personal concerns? Integration of children's experiences with the course?

3. Exchange materials and discuss questions above, after first considering how the materials you are now using are similar to or differ from the first materials you examined.

4. Reassemble and reread Jones' "We Learn Best When We Care Most"

How does the author define the importance of emotions and feelings in the learning process?

Where would you draw the line in allowing the expression of personal feelings in the classroom? Why?

WE LEARN BEST WHEN WE CARE MOST*

Richard M. Jones

A comprehensive theory of instruction should seek to prescribe not only optimal levels of intellectual uncertainty, risk and relevance but also optimal levels of emotional involvement and personal curiosity. Pose the purely cognitive challenge to a fifth grade child of speculating on the absence of social fatherhood among baboons and he is likely to be led to levels of uncertainty, risk and relevance that are either too high or too low to support his best thoughts -- depending on what his uninstructed self-interests happen privately to make of it. But find a way to engage his heart in the problem and you are likely to see the child rise naturally to his own optimal levels of uncertainty, risk and relevance. This is but a long-winded restatement of the homily that we learn best when we care most. The hitch in the homily, and the cause of its being more honored in conferences than in classrooms, is that what a child cares most about may also most readily threaten him -- or his teacher.

* * *

The rationale for cultivating emotions in schoolrooms is thus the reverse of the rationale for cultivating emotions in clinics. In clinics, issues which are known to be emotionally charged are raised for the purpose of creating conditions under which emotions can come to be controlled and expressed. In schoolrooms, conditions are created which invite expression of controlled emotions for the purpose of imbuing curricular issues with personal significance. The power of emotion to generate interest and involvement in subject matters which would otherwise find children uninterested and uninvolved lies in their deep personal familiarity -- such familiarity being a consequence of emotion having been integral to every phase of personal development from infancy on. The value of emotional involvement in the learning process thus lies in its potential for aiding assimilation of new or remote experiences in idiomatically illuminating ways.

* * *

Since I have been personalizing my point of emphasis, I shall give a personal illustration: Over the past several years, incidental to my work with ESI, I have perforce learned a great deal about the Kalahari Bushmen. Among the many things I thought I knew about the Bushmen was that they are a "resourceful people." I put that in quotations because it is the way I now realize that I learned it: "The Bushmen are a resourceful people."

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*From Fantasy and Feeling in Education (New York: New York University Press, 1968), pp. 125, 174, 176-180.

Recently, in a seminar with a group of teachers who were preparing to teach some trial units of "Man: A Course of Study," I shared the viewing of a film sequence which I had not previously seen. It shows a very dusty, elderly man looking very uncomfortable in the afternoon heat. He motions knowingly to an adolescent boy who routinely pulls his loin cloth aside and proceeds to urinate in the sand at the man's feet; whereupon the man lies down and distributes handfuls of the moistened sand over his body with unmistakable expressions of blissful relief. The ladies and I were the pictures of controlled emotion. No sound emitted during this part of the film, and in the discussions that followed there was a very deft steering around certain topics. It was one of those situations in which the quality of control was made uncertain, however, by not knowing who would be the first to mention the subject that was obviously the focus of everyone's inner tensions. My own uncertainty was made the more acute by the knowledge that this was exactly the kind of situation to which I should rise with some professional flourish, in order to demonstrate at first hand what it had become expected of me to espouse at second hand: the usefulness of openly confronting emotionally charged issues. But for ten minutes after the conclusion of the film, my training and convictions could get only so far as to remind me that here was an opportunity I should be taking, and wasn't. Truth to tell, I had never before shared with a group of lady school teachers the view of a man urinating, much less the view of pleasure in handling excrement, and, as I recall it, I spent the ten minutes feeling alternately embarrassed, abashed that I should feel so, and angry at certain members of the staff, who, I thought, should have alerted me to this part of the film, so that I might have come prepared for it.

Fortunately, out of the sounds at my ear's periphery came the word "resourceful." The seminar was discussing the Bushmen's resourcefulness in the hunting of warthogs, but the word saved the day for me in a very different connection. I knew that the teachers expected me to make some capital of the "urination scene." I also knew that if I had no more to say than that the scene offered opportunities to engage children's emotions concerning the "anal-urethral" phase, and related issues of holding on, letting go, shame, etc., I would raise doubts concerning my own rule that the confrontation of emotional issues in instructional settings should be means to educational ends and not ends in themselves. But during those ten minutes I just could not see the relevance of the urination scene to the pedagogical objectives of "Man: A Course of Study." Out of this unspoken emotion-filled dilemma, I learned, I say, in a very illuminating way, that the Kalahari Bushmen are indeed a very resourceful people: What could be more resourceful in an environment which offers precious little water, but which regularly offers afternoon temperatures of 115 degrees, than the trick of turning a young person's urine to an old person's refreshment? And wasn't this a superb stimulus for getting children to ponder the distinctive resourcefulness of "Man"? Immediately, contrasts and similarities lined up for inspection: the rigid hierarchies that govern access to waterholes among various other species; the implicit rules among non-human primates which govern grooming behavior; the gaming partnerships among the Eskimos in winter camp, through which are resolved so many unplayful conflicts of interest; the Roman baths, and the unparalleled engineering of the viaducts that made them possible; modern Western plumbing, and the training it affords in private enterprise -- so central to so many other values of industrial technology. Fortunately, the people who made the film were not thinking of pedagogical objectives; only of honestly recording how the Kalahari Bushmen actually live their lives. And so I was given an opportunity to observe with my own eyes how really human the Bushmen are, evidenced by their ingenuity in adapting environments to themselves rather than themselves to environments, by means of cooperative social patterns!"

* * *

The point to be emphasized, however, is still the personal one: I knew before that "the Bushmen are a resourceful people," but in no way that warmed me to them. Indeed, this piece of knowledge was probably as drab to me as it was, because, unlike the children, I was very much at home with the relevant abstractions -- too much so, perhaps. I am confident, for example, that I shall never observe a specimen of human behavior that is not somehow distinctively resourceful -- in comparison with the other animals -- by virtue of its being symbolically processed, and related to some aspect of technology and social organization. So, of course, the Bushmen are resourceful, because the Bushmen are people. Hardly a very assimilated thought. Now, however, I have personally assimilated a particular facet of Bushmen resourcefulness as a vivid case in point of human resourcefulness. And I know that I shall never forget it.

Seminar 15: Education as Social Invention: The Teaching of Values

If cultures contain values or moral principles by which people judge their own actions and those of others, are there also values that permit us to judge the actions of the cultures themselves?...The answer to the problem of judging other cultures lies neither in extreme relativism, which maintains that each culture is unique and therefore its standards are unassailable from outside its own frame of reference, nor in extreme absolutism, which sets one standard for all cultures based on an absolute moral value defined by the observer.

...Criteria for helping us choose between varying forms of moral principles are difficult to define but may be, in the long run, necessary for man's survival.

The study of man helps to establish criteria for judging whether one set of standards and values can be considered more viable and defensible as a goal for the survival of man than another. If ethical judgments are basic to the nature of man, man's survival may yet depend on his ability to find values and set standards for behavior that will assure the survival of his species in the atomic and post-atomic age. But however absolute such values may be, the rules by which man will have to govern himself must take into account the inventiveness of man himself, and the historic process in which change occurs. It is in the pursuit of knowledge of the human condition that an answer to Jerome Bruner's questions and quest as to what makes man more human may yet be found. It is partly in the hope of making children aware of this question -- a question basic to an education directed toward an unchartered future -- that we have worked on this course.

-- Hans Guggenheim, "The Concept of Culture," Talks to Teachers

Teacher Education Film:	"The Story of Kigtak"
Booklets:	A Journey to the Arctic This World We Know Songs and Stories of the Netsilik Eskimos
Record:	"Words Rise Up," An Old Woman in a Storm

Teachers' Guide: The Netsilik Eskimos on the Sea Ice

Readings: Bessie E. Richardson, "Old Age in Ancient Greece"
E. Grant Yeomans (ed.), "Old Age Among the American Indians"

1. Using information from three sources, "An Old Woman in a Storm," A Journey to the Arctic (April 13), and the excerpt from Kabloona on page 13 of The Netsilik Eskimos on the Sea Ice, discuss the way the Netsilik treat old people.

   Why are the three women treated differently?
   How do the Netsilik think old people should be treated?
   Is this 'ideal' treatment the usual practice?
   What is your opinion of the way the Netsilik treat old people?

2. Compare the Netsilik values regarding old age with those of the ancient Greeks and the traditional Indians. Then compare the values represented by the way contemporary Navajo Indians treat old people with the values held in modern America.

   How is American treatment of the aged like and unlike the Netsilik? Ancient Greek? Modern Navajo?
   What circumstances might bring about change in the traditional place of the aged? (Examine Navajo closely.)
   What can be gained from teaching about treatment of the aged in other societies?

3. View the film up to the first fadeout (about 10 minutes). (This film is not intended as a model of a perfect class; it is shown to raise questions pertaining to discussion of difficult human problems in an elementary classroom.)

   What is the range of feeling and opinion that has been expressed?
   What should happen next? How can the teacher get beyond the students' cool relativism?

4. View the film until the second fadeout (about 10 more minutes).

   How has the emphasis on problem-solving (finding the "best solution") affected the children's discussion? Has it clarified the dilemma of this Netsilik family?
   Is it appropriate to vote on this issue? When is consensus an appropriate goal? Are the dissenters "wrong"?
   What should the teacher do if students denounce the Netsilik as cruel and barbarous?
   Why did the teacher ask, "What if it were you?" What will the students answer?

If you were teaching this class, what would you do next?

5. Watch the remainder of the film.

    Have the students related the Netsilik story to their own lives? Did the role play facilitate this?
    Should the teacher set up a role play of an American family considering what to do with grandmother (put her in a nursing home, the need for the bedroom, etc.)?
    Have the students confronted the issues of differing cultural values?
    Have "value questions" become more open or closed in the filmed class?
    What might children learn by confronting human problems that are not easily solved? How is this related to understanding what is human about man?

6. Working in pairs, rewrite the lesson plan on pages 18-21 of the teachers' guide, The Netsilik Eskimos on the Sea Ice. Consider using other materials (e.g., Songs and Stories of the Netsilik Eskimos, This World We Know) and new activities.

    What will be your major goals?
    How will you teach about value systems different from your own?
    How do teachers implicitly teach values by:
        -the nature of the questions asked?
        -the tasks assigned?
        -the problems chosen or omitted in classroom discussion?

OLD AGE IN ANCIENT GREECE*

Bessie E. Richardson

The superior mental endowments with which older men and women were believed to be invested enhanced the importance of the former in legislative and judicial affairs. Xenophon believes that it is better for a young man to give heed to his own health of body, and he suggests horsemanship as a proper pursuit; but the older man has his town property and his friends, and the hundred and one concerns of state and war on which to employ his time.

* * *

Besides the simple acts of showing deference and obedience to one's parents and to all old people and refraining from personal injury, rather definite things were expected in the way of maintenance of aged parents. One of the sections of the laws of Solon regulated the relationship between members of the family. A legitimate son was obliged to maintain his parents in old age; and penalty for failure to do so was loss of citizenship. He was exempted from this duty if his father had not taught him a trade. Aristotle explains how retribution should be made to parents. It is especially necessary to supply them with nutriment, and honor should be paid to parents as to the gods. Honor should be paid to every elderly man according to his age by rising from one's seat and resigning it to him. Plato gives the three ways in which one must minister to an aged parent: (1) in his property, (2) in his person, and (3) in his soul. He also advocates legislation by the state to assist the old in caring for their property. It was the duty of the parents, however, to bring up their children and train them in good citizenship, and therby exact respect.

* * *

In Plato's ideal state the care of orphans was to be entrusted to the fifteen eldest guardians of the law. Charges of maltreatment brought by children against parents were to be decided by those more than sixty years of age, having children of their own. On the other hand, charges of insufficient care given to aged parents should be brought before a court composed of the eldest citizens, who might inflict any punishment they wished if the guilty parties were over thirty (in the case of a man) or forty (in the case of a woman). If under this age the penalty should be scourging or imprisonment. If a son was in doubt about indicting his aged father for insanity he should first lay the case before the eldest guardians of the law. The minister of education should be an old man, but since he would have a great deal of work he should have plenty of assistants, both male and female. Seventy should be the retirement age in important governmental positions. There appears to have been no pension system, and no philanthropic institutions to care for the aged.

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*Bessie Ellen Richardson, Old Age Among the Ancient Greeks (Baltimore: Johns Hopkins Press, 1933), pp. 31, 32-33, 36.

OLD AGE AMONG THE AMERICAN INDIANS*

E. Grant Yeomans, ed.

In Traditional Times

American Indians provided economic security for the aged by reserving many roles for older people. Commonly, knowledge was considered to be a form of property. An old man frequently had more ceremonial knowledge than younger men and this he was paid for as he imparted it to his disciples. Payment was made for the treatment of illness, for dispelling witchcraft, and for divining the whereabouts of lost articles.

In almost every instance, however, an individual looked to his own family for support in his declining years. The old people performed many of the household chores, freeing their own children for such tasks as herding or hunting, seed and root gathering, or the tanning of hides. It was the grandparents who told the children stories during the long winter nights and so began their education as members of the tribe, for these stories contained the rudiments of tribal history, cosmology, and world view. American Indian societies were kin-based, behavior between individuals being determined by the kinship relation existing between them. Thus a considerable number of relatives felt responsible for the well-being of the older people. Bonds between kinsmen are still strong. Navajos often make special trips over a period of several days to bring food to aging relatives. Among the Hopi, a healer will be called "father" by his patients, and because of this relationship they will continue to bring him gifts of food and clothing for many years.

It is not surprising, then, to find a considerable amount of prestige accruing to old age, although it might be more correct to say that the prestige was attached to the role rather than to old age itself. Thus, if a man had ceremonial knowledge he was known as a wise old man. But if during his active years he had done little to qualify himself for the roles to come, his later prestige would automatically be less. In general, the aboriginal Indian held the aged in respect. There was no retirement but instead a continued utilization of the individual for constructive purposes. In some ways, old age brought rewards. Many social and ceremonial restrictions did not apply to old people. In many tribes women were allowed greater sexual freedom after menopause. It was common for women to become healers and to participate in rituals after menopause.

* * *

All positive elements associated with old age were inextricably bound to the performance of socially productive roles. That such useful roles were available to most aged people was indeed fortunate, for with senility we find evidence of abandonment, neglect, and even maltreatment. In most cases the Indian's old age was a prime of life. Freed from domestic chores, the leader of the family group, a possessor of practical, religious, or medicinal knowledge, the older Indian was actively engaged in leading, educating, and advising, the very roles generally associated with middle age and prime of life in contemporary American society.

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*E. Grant Yeomans (ed.), Older Rural Americans (Lexington: University of Kentucky Press, 1967), pp. 224-225, 228, 229, 231-232, 233, 235, 237.

An individual who survived the enteric and respiratory illnesses of childhood and the traumas of accidents and warfare in adulthood was likely to enter old age as a very healthy specimen...He probably remained a fairly active old man until 70 or 80, when senility overtook him and death followed soon after.

The small number of aged Indians living at any given time had social implications of some import. The few individuals occupying the old-aged status were easy to provide for in an economy of scarcity and they posed no threat to the younger generation. Avenues to success were not blocked by large numbers of aging, high-status people and so no resentment between youth and age developed.

The Navajo Today

Unlike the hunters and gatherers who had their game supplies destroyed, the Navajo were able to continue their agriculture and pastoralism with considerable success until the 1930's, a period of almost seventy years. At this time overgrazing, erosion, and a sudden decline in the wool and lamb market necessitated a drastic curtailment of the traditional pursuits. The years since the Depression have been marked by an increased reliance upon wagework; an opening of the reservation to the outside world by the building of roads in an effort to increase the tourist trade, attract small industry, and permit the Navajo access to off-reservation jobs; and a prodigious expansion of health, education and welfare activities aimed at preparing the Navajo for this new type of life.

By reviewing traditional Navajo roles for the aged in the light of new developments, it is possible to highlight the position the older Navajo occupies today. Property holdings of the old people have been seriously affected by current developments. The stock reduction program has not only curtailed the amount of wealth controlled by the individual but has put considerable pressure upon the older stock owner to relinquish his grazing pursuits to his heirs so they can support their own growing families. Government agents have encouraged the practice, pointing out that an elderly person without livestock may qualify for old age benefits. Although total income for the kin group may be increased thereby, this practice strips the elderly of the managerial roles and the prestige that goes with them. The value of traditional knowledge in general and of ceremonial knowledge in particular is decreasing rapidly. The experienced stock-raiser has nothing to teach a younger person who cannot increase his flocks but who must learn wagework skills and modern stock-raising techniques that the older people do not know. Young people, unable to increase or inherit flocks, find it impossible to pay for the long years of apprenticeship to a ceremonial healer. The peyote religion is offering more easily obtained ceremonial roles to the younger men. Free medical services as well as the peyote ceremonies are competing with the very expensive and elaborate traditional healing rituals. Only the best medicine men are able to make a full-time living and few are finding young men to carry on after them.

The shift to wagework has encouraged the development of the nuclear family at the expense of the extended family. Old people are a burden to young couples operating in a cash economy with the low incomes of unskilled workers. The domestic skills of the traditional aged are less important in a small household.

* * *

More uncomfortable perhaps has been the resultant destruction of the education and advising functions of the experienced older person. Unwise in the ways of the white world, he can no longer advise adequately in the political councils of his community. With the children away at school during the winter months (the traditional time for recounting the myths and legends), the older person can no longer function as educator and imparter of tribal morality and world view. To compound the tragedy, it is becoming increasingly apparent that the younger, educated Navajos do not want much of what the old people have to offer. Young mothers complain that their parents do not care for the infant grandchildren properly. They are said to be unsanitary, careless, do not "discipline" the children.

* * *

Urged to sign his grazing permit over to his heirs by an agricultural expert who wants to see the younger families become economically active, the older Navajo loses his source of authority in the family. The family income is then increased when the elderly person qualifies for old age benefits. But without prestige and authority the older person is all too often seen as nothing more than an added source of income. The development of this attitude is not conducive to good familial care of the elderly and frequently generates bitter disputes between relatives about who will care for the old people and so receive the welfare check. The growing number of families who find it a burden to care for the aged has recently led to discussions between the tribe and the Public Health Service concerning the feasibility of constructing a nursing home on the reservation. The expansion of welfare services certainly recognizes economic needs and strives to answer them. Inadvertantly, and perhaps inevitably, the encouragement of the use of welfare programs fosters the destruction of the image of the wise and active old man and substitutes one of dependency and debility.

* * *

Health programs will preserve a growing number of dependent and ailing old people for whom larger and cleaner nursing homes must be built. It is poor consolation to realize that in passivity the Indian will perform a new constructive role: his very dependency will create more jobs for young acculturated descendents who will care for him as nurses and social welfare workers.

Seminar 16: Education as Social Invention: The Teaching of World View

> Having a world view is a uniquely human phenomenon. Only man has the desire and ability to explain his world. However, most individual men are not inventors of explanations, and no man independently creates a whole cosmology. A person's culture provides him with a cosmology; socialization is society's process for teaching its members a particular world view.
>
> -- "World View," Talks to Teachers

Record: "Words Rise Up": Nuliajuk, Thunder and Lightning, Magic Words for Hunting Seals

Booklets:
Songs and Stories of the Netsilik Eskimos
This World We Know
The Data Book
A Journey to the Arctic

Readings:
Clyde Kluckholn, "The Need for a Moral Order"
Charles Bulfinch, "Beliefs of the Norsemen"
_____, "Beliefs of the Classical Greeks"
Ellen R. Emerson, "Winnebago Indian Beliefs"
Bible: "Genesis"

1. Play "The Story of Nuliajuk" and "Thunder and Lightning" on the record.

   How are the two myths similar?
   How might these two mythic stories of cruelty to children be related to the Netsilik practice of infanticide and their feelings about it? (See A Journey to the Arctic, April 15.)
   What can we learn, or hypothesize, about the Netsilik from the myths?
   What fears and anxieties are expressed in these stories?

2. Play "Magic Words for Hunting Seal" on the record, read "The Great Spirits" in This World We Know and consult The Data Book on "Amulets," "Magic Words," "Nuliajuk," and "Spirits."

   How do the spiritual practices of the Netsilik allay their fears and anxieties?
   How does this belief system help them understand and predict their world?

How does it help them control their world?

3. Compare the Netsilik world view with that of the Ancient Greeks, Winnebago Indians, Norsemen and Judeo-Christians in "Genesis."

   Are there similar events or characters in the myths?
   What else is similar in them?
   Why might there be these similarities and differences?
   What do the myths tell about the attitudes of the cultures toward:

   -human nature?
   -man's place in the universe?
   -women?
   -nature of the gods and their feelings toward men?

4. To examine the relationship between myth, social organization and technology, break into small groups. Write and illustrate a myth that will teach and sanction the way the natural and social world operates in an imaginary society, some of whose characteristics are:

   small size (about 200 people)
   agrarian economy using barter system
   environment same as your geographic region
   women are political leaders
   women own all property
   children take names of their mothers

5. Groups share their myths. As each group tells its myth, the others listen as though they were the children in that society. One test of a myth is whether or not it is powerful enough to convince children to hold that view of the world and to behave in ways appropriate to that mythic interpretation.

6. Divide into the same small working teams and write several paragraphs describing how schools teach children a world view. (Note the distinction between the religion and cosmology components of world view.)

> In our analysis we have roughly divided world view into religion and cosmology...In many societies, including the Netsilik, religion concerns supernatural forces such as gods, ghosts and spirits. It is essentially a symbolic system in which something stands for something else... Cosmology is the body of myths and beliefs explaining the beginning of the world and its composition. It, too, is symbolic...A people's cosmology includes their knowledge of their natural environment, which is necessary in order to exploit its resources.

-- "World View," Talks to Teachers

7. Share reports of the groups. Discuss:

    How is religion taught in our society?
    How is cosmology taught in our society? (Include methods outside school.)
    Netsilik parents teach children the entire Netsilik world view. Could American parents do the same? Why? What does this tell us about the differences between Netsilik and American society?
    Do you think that Canadian schools should teach the Western "scientific" cosmological system to Eskimo children? What are the consequences of either choice?

Follow-up Reading: "World View" in Talks to Teachers. Note especially the function of world view and the differences between "scientific" and "supernatural" world views.

Note: Ask volunteers to bring in "Eskimo" food for a feast to be held while discussing a Winter Festival in the next seminar.

THE NEED FOR A MORAL ORDER*

Clyde Kluckholn

The universality of religion (in the broadest sense) suggests that it corresponds to some deep and probably inescapable human needs...There is the need for a moral order. Human life is necessarily a moral life precisely because it is a social life, and in the case of the human animal the minimal requirements for predictability of social behavior that will ensure some stability and continuity are not taken care of automatically by biologically inherited instincts...Hence there must be generally accepted standards of conduct, and these values are more compelling if they are invested with divine authority and continually symbolized in rites that appeal to the senses. But no religion is solely a system of ethics. All religions also represent a response to the wonder and the terror of the ineluctable processes of nature. They supply some answer to the profound uncertainties of experience, most especially to the homogeneity of death...

BELIEFS OF THE NORSEMEN**

Charles Bulfinch

According to the Eddas there was once no heaven above nor earth beneath, but only a bottomless deep, and a world of mist in which flowed a fountain. Twelve rivers issued from this fountain, and when they had flowed far from their source they froze into ice, and, one layer accumulating over another, the great deep was filled up.

Southward from the world of mist was the world of light. From this flowed a warm wind upon the ice and melted it.

The vapors rose in the air and formed clouds, from which sprang Ymir, the Frost giant, and his progeny, and the cow Audhumbla, whose milk afforded nourishment and food for the giant. The cow got nourishment by licking the hoar-frost and salt from the ice. While she was one day licking the salt-stones there appeared at first the hair of a man, on the second day the whole head, and on the third the entire form, endowed with beauty, agility, and power. This new being was a god, from whom and his wife, a daughter of the giant race, sprang the three brothers, Odin, Vili, and Ve.

*From the Foreword of W. A. Lessa and E. Z. Vogt, Reader in Comparative Religion: An Anthropological Approach (New York: Harper and Row, 1958).
**The Age of Fable (Philadelphia: David McKay, 1878), pp. 410, 411, 412, 413.

They slew the giant Ymir, and out of his body formed the earth, of his blood the seas, of his bones the mountains, of his hair the trees, of his skull the heavens, and of his brain clouds, charged with hail and snow. Of Ymir's eyebrows the gods formed Midgard (mid earth), destined to become the abode of man.

Odin then regulated the periods of day and night and the seasons by placing in the heavens the sun and moon, and appointing to them their respective courses. As soon as the sun began to shed its rays upon the earth it caused the vegetable world to bud and sprout. Shortly after the gods had created the world they walked by the side of the sea, pleased with their new work, but found that it was still incomplete, for it was without human beings. They therefore took an ash tree and made a man out of it, and they made a woman out of an alder, and called the man Aske and the woman Embla. Odin then gave them life and soul, Vili reason and motion, and Ve bestowed upon them the senses, expressive features, and speech. Midgard was then given them as their residence, and they became the progenitors of the human race.

The mighty ash tree Ygdrasill was supposed to support the whole universe. It sprang from the body of Ymir, and had three immense roots, extending one into Asgard (the dwelling of the gods), the other into Jotunheim (the abode of the giants), and the third to Niffleheim (the regions of darkness and cold). By the side of each of these roots is a spring, from which it is watered. The root that extends into Asgard is carefully tended by the three Norns, goddesses, who are regarded as the dispensers of fate. They are Urdur (the past), Verdandi (the present), Skuld (the future). The spring at the Jotunheim side is Ymir's well, in which wisdom and wit lie hidden; but that of Niffleheim feeds the adder Nidhogge (darkness), which perpetually gnaws at the root. Four harts run across the branches of the tree and bite the buds; they represent the four winds. Under the tree lies Ymir, and when he tries to shake off its weight the earth quakes.

Asgard is the name of the abode of the gods, access to which is only gained by crossing the bridge Bifrost (the rainbow). Asgard consists of golden and silver palaces, the dwellings of the gods; but the most beautiful of of these is Valhalla, the residence of Odin. When seated on his throne he overlooks all heaven and earth. Upon his shoulders are the ravens Hugin and Munin, who fly every day over the whole world, and on their return report to him all they have seen and heard. At his feet lie his two wolves, Geri and Freki, to whom Odin gives all the meat that is set before him, for he himself stands in no need of food. Mead is for him both food and drink. He invented the Runic characters, and it is the business of the Norns to engrave the runes of fate upon a metal shield. From Odin's name, spelt Woden, as it sometimes is, came Wednesday, the name of the fourth day of the week.

Odin is frequently called Alfadur (All father), but this name is sometimes used in a way that shows that the Scandinavians had an idea of a deity superior to Odin, uncreated and eternal.

WINNEBAGO INDIAN BELIEFS*

Ellen Russell Emerson

In ancient days the Great Spirit awakened from a long dream, and, finding himself alone, took a piece of his body near his heart, and a bit of earth, and from them made a manitto (a spirit). Being pleased with this creation, he made three other manittos in the same form. These are the spirits of the four winds -- east, west, north, and south. After having talked with these a little while, he created a female manitto, who was this earth. She was first without covering, with no trees and without grass. Perceiving this, the Spirit created them, together with a vast quantity of herbs. Now, after this was done, the earth grew irregular in her motions; the Spirit was obliged to make four beasts and four serpents, and place them under her for support. This excited the four winds, who blew upon her so furiously that she rolled about more than ever. Then the Spirit created a buffalo, and placed him beneath, after which her motions became regular.

Having created the earth and the grass and the trees, the Great Spirit took a piece out of his heart, near which had been taken the earth, and formed the fragment into a man. The woman then was made, but a bit of flesh sufficed for her; therefore it is that the man became great in wisdom, but the woman very much wanting in sense. To the man was given the tobacco seed, that, thrown upon the fire, it might propitiate the messenger-manittos to convey prayers or supplications; to the woman a seed of every kind was given, and to her were indicated the roots and herbs for medicine. Now the Spirit commanded the two to look down; and they looked down, when lo! there stood a child between them. Enjoining the pair to take care of all the children which they might obtain in the future, he created the male and the female the first parents of all tribes upon the earth. He then informed them, in the language of the Winnebagos, that they should live in the centre of the earth. The Spirit afterward created the beasts and birds, for the use of all mankind; but the tobacco and fire were given to the Winnebagos.

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*From Indian Myths (Boston: Houghton, Mifflin & Co., 1884), pp. 117, 128.

BELIEFS OF THE CLASSICAL GREEKS*

Charles Bulfinch

Before earth and sea and heaven were created, all things wore one aspect, to which we give the name of Chaos.

Earth, sea and air were all blended together. The earth was not solid, the sea was not fluid, and the air was not transparent.

God and Nature at last interposed and put an end to this discord, separating earth from sea and heaven from both. The aery part, being the lightest, sprang up and formed the skies; the air was next in weight and place. The earth, being heavier, sank below, and the water took the lowest place, and buoyed up the earth.

Here some god -- it is not known who -- gave his good offices in arranging and disposing the earth. He gave to the rivers and bays their places, raised mountains, excavated valleys, distributed woods, fountains, fertile fields and stony plains. The air being cleared, the stars began to appear, fishes took possession of the sea, birds of the air, and four-footed beasts of the land.

But a nobler animal was wanted, and Man was made. It is not known whether the Creator made him of divine materials, or whether in the earth, so lately separated from heaven, there lurked still some heavenly seeds. Prometheus took some of this earth, and kneading it up with water, made man in the image of the gods.

He gave him an upright stature, so that while all other animals turn their faces downward and look to the earth, he raises his face toward heaven and gazes upon the stars.

Prometheus was one of the Titans, a gigantic race who inhabited the earth before the creation of man. To him and his brother Epimetheus was commited the office of making man, and providing him and all other animals with the faculties necessary for their preservation. Epimetheus undertook to do this, and Prometheus was to overlook his work. Epimetheus accordingly proceeded to bestow upon the different animals the various gifts of courage, strength, swiftness, sagacity; wings to one, claws to another, a shelly covering to a third, etc. But when man came to be provided for, who was to be superior to all other animals, Epimetheus had been so prodigal of his resources that he had nothing left to bestow upon him. In his perplexity he resorted to his brother, Prometheus, who, with the aid of Minerva, went up to heaven and lighted his torch at the chariot of the sun and brought down fire to man.

*The Age of Fable (Philadelphia: David McKay, 1878), pp. 19, 20, 21.

With the gift of fire came man's donimion over the earth. The beasts were his enemy, but fire enabled man to forge weapons and overcome them. With fire he warmed his dwelling, and thus became an inhabitant of every clime. With it he also introduced the arts, coined money, and brought about the possibilities of trade.

Woman was not yet made. The story (absured enough!) is that Jupiter beholding from his throne on Olympus a strange fire upon the earth, asked what it meant. When told, his rage knew no bounds. The gods were assembled in council, and it was determined that woman should be created, and sent to man as a punishment for accepting Prometheus' gift. She was made in heaven.

The gods vied with each other in contributing their gifts. Venus gave her beauty, Mercury persuasion, Appolo music, etc., because of which she was named Pandora.

Thus equipped, she was conveyed to earth and presented to Epimetheus, who gladly accepted her, though cautioned by his brother to beware of Jupiter and his gifts. Epimetheus had in his house a jar, in which were kept certain noxious articles, for which, in fitting man for his new abode, he had had no occasion. Pandora was seized with an eager curiosity to know what this jar contained.

Pandora was not equal to the temptation. One day she slipped off the cover and looked in. Forthwith there escaped a multitude of plagues for hapless man, -- such as gout, rheumatism and colic for his body, and envy, spite and revenge for his mind, -- and scattered themselves far and wide. Pandora hastened to replace the lid, but alas! the whole contents of the jar had escaped, one thing only excepted, which lay at the bottom, and that was hope. So we see at this day, whatever evils are abroad, hope never entirely leaves us; and while we have that, no amount of other ills can make us completely wretched.

Seminar 17: Action/Image/Symbol: Three Ways of Representing Reality

Human beings have three different systems for representing reality: through action, through imagery, through symbols (the prototype of which is language). As we all know, a man can say "I love you" in dance, in drawing and in poetry.

Each way of representing and learning about reality is powerful and has its own skills and pleasures. Our students learn in all three ways, but learning something in one way does not necessarily provide a grasp of it in another. The data and concepts of Man: A Course of Study are presented in action, image and symbol so that one reinforces another, while at the same time, there is opportunity for individual preference in learning.

Film: "At the Winter Sea Ice Camp," Part III

Booklets: Songs and Stories of the Netsilik Eskimos
A Journey to the Arctic

Posters: "Families at Pelly Bay," "A Camp on the Sea Ice"

Miscellaneous Materials: three skeins of colored yarn or string, straight pins

Teachers' Guide: The Netsilik Eskimos on the Sea Ice

Reading: Jerome S. Bruner, "Representing Reality"

1. Prepare for the film "At the Winter Sea Ice Camp," Part III, by looking at the diagram of igloos on p. 58 of the teachers' guide The Netsilik Eskimos on the Sea Ice. Watch the film, concentrating on the social life in the large communal igloo.

    When did you see Eskimo children learn by action? By image-picture? By symbols?
    Which subjects in your own classroom do children learn by action? By image? By symbol?

2. In the center of the seminar room, mark off the space of the ceremonial igloo and set up four clusters of desks or chairs in the corners. Divide into four groups to work in each corner or "family alcove." Allow at least one-half hour for each group to choose and complete one of

the following tasks:

Group I: Use colored yarn pinned to the poster "A Camp on the Sea Ice" to represent the social ties at winter camp. (See activity #1 in lesson on pages 68-70 of the teachers' guide.)

Group II: Read entry for April 21 in *A Journey to the Arctic* and choose song partners among the group. Write songs to one other. (Read activity #2 on pages 68-70. See activity #1 on pages 76-77 for instructions on how to write an "insulting song" such as the "Fly and the Water Beetle" and "The Raven and the Gull Have a Quarrel" in *Songs and Stories of the Netsilik Eskimos*.)

Group III: Learn about the Netsilik seal-sharing system (the lesson on pages 54-57) and design a way, perhaps enactive, to teach the rest how it operates.

Group IV: Read about the winter festival in lesson pages 72-75 of the teachers' guide. Play some Eskimo games and prepare an Eskimo feast.

3. Enjoy the Eskimo feast while sharing your activities with one another. When finished, consider whether the activities were *action*, *image-picture* or *symbolic* ways of representing reality. Many activities have elements of all three. For example, although Eskimo games are purely action representations, the role play of the seal-sharing partnerships involves action, image and word-symbols.

What is the difference between learning about a game by *playing* it and *reading* about it?
What is the difference between using colored string to *diagram* the social ties and reading a *verbal description* of them?
What are the advantages of learning through symbols? Why does learning in the "what if...?" mode (Seminar 13) require symbols?
Do you have a preferred way of representing or learning about reality? Do your students have preferences?
Some psychologists hypothesize that people who are good at intuitive thought (see Seminar 11) think mostly in imagery. What data from your personal experience can you bring to this hypothesis?
How did this seminar (its outline, its instructions, its organizing ideas) require symbols?

REPRESENTING REALITY*

Jerome S. Bruner

Human beings have three different systems, partially translatable one into the other, for representing reality. One is through action. We know some things by knowing how to do them: to ride bicycles, tie knots, swim, and so on. A second way of knowing is through imagery and those products of mind that, in effect, stop the action and summarize it in a representing ikon...It is still true that a thousand words scarcely exhaust the richness of a single image. Finally, there is representation by symbol, of which the prototype is language with its rules for forming sentences not only about what exists in experience but, by its powerful combinatorial techniques, for forming equally good ones about what might or might not exist. Each of these modes has its own skills, its own prosthetic aids, its own virtues and defects...

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*From "The Perfectibility of Intellect," in Knowing Among Men: A Study in Behavior, ed. Smithsonian Institution (New York: Simon and Schuster, 1966).

Seminar 18: Are Variations Among Children a Problem or a Resource?

There are many ways of analyzing differences in learning styles. Liam Hudson and Jerome Bruner each suggest types of thinking that may in fact reflect general characteristics or predispositions. They both, however, raise the question of how we can help some learners become interested in open-ended questions and at the same time help others 'forge metaphoric hunch into testable hypothesis.'

How do we explain differences in learning behavior?
Do the content and approach of classroom materials reinforce some styles more than others?
Does the organization of the classroom and the school emphasize one style more than others?
How can the individual variations among students' learning styles in any classroom be turned into a valuable asset?

Film:	**Videotapes or films of classrooms if available**
Teachers' Guide:	**Baboons ("Examining Troop Organization," "Communication in the Troop")**
Readings:	**Liam Hudson, "Convergers and Divergers"** **Jerome S. Bruner, "The Right Hand and the Left"** **George W. Denemark, "Differing Views of Human Variability"**

1. Divide into groups to discuss different learning styles you observe in your own students. List the five most common ways of categorizing the different styles by which elementary students think and learn.

2. Review the articles by Bruner and Hudson.

   What new insights do they give you into your own thinking/learning style? That of your students?
   Which of your students learn and think through "hunches and intuitions...weaving ideas loosely in a trial web"?
   Which of your students would be extreme convergers or extreme divergers? What are the special learning problems of each?
   How do the categories suggested by Bruner and Hudson give you a new perspective on your original list?

3. Denemark suggests that school curriculum and methods of instruction will differ depending on whether human variability is seen as a source of problems or as an important resource.

   Do the materials of Man: A Course of Study provide for varying styles of thinking and learning?

   First examine "Examining Troop Organization" and "Communication in the Troop" (pages 40-44 and 57-59 in Baboons).

   Do some lessons or activities emphasize one learning style more than another? Which ones?
   Do some lessons or activities encourage collaboration in problem solving among pupils with different learning styles? How?

   Then examine the following questions that are asked in connection with the story of Kaluarsuk:

   > How do you think Kaluarsuk became a great hunter?
   > How does Kuvkilik feel about Kaluarsuk? How do you know?
   > How do Kuvkilik and his wife obtain their food?
   > If one of Kuvkilik's sons broke his arm, what would happen to his family? Would they starve?
   > Why do the Netsilik enjoy this story so much?
   >
   > -- The Netsilik Eskimos at the Inland Camps, p. 62.

   If your pupils had a choice, would they answer different questions?
   How would your pupils differ in how they answered the questions?
   Would the differences be due to differences in intellectual ability? Style of thinking? Interest in the problem? Style of question?

4. Compare the elementary school you attended as a child with the one in which you are teaching.

   What similarities among students were (are) emphasized in the organization of the school or classroom? What differences among students are emphasized?
   How did (does) the school or classroom program encourage and discourage variation within each student?
   Did (does) the school administration view variation among teachers as a problem or as a resource?
   What activities in your classroom would suffer if your students were all the same in their learning styles?

5. Watch videotapes or films of classrooms (if they are available) for examples of interaction among students with different learning styles.

   Did the teacher view the differences as a problem or a resource?

SEMINAR 18

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Invite students taking Man: A Course of Study to Seminar 19. Their ideas will be helpful in creating the American curriculum.

CONVERGERS AND DIVERGERS*

Liam Hudson

The conventional intelligence test is by now familiar. This usually consists of questions in the form of puzzles. The individual is set a problem to which he is required to find the right answer; and he is frequently invited to choose this right answer from a list of alternatives. The victim knows that there is one solution which is correct, and his task is to ferret it out. His reasoning is said to converge on the right answer. A typical intelligence test question might run:

> Brick is to house as plank is to...orange, grass, egg, boat, ostrich.

Only one of the five alternatives satisfactorily completes the analogy: 'boat.' Not all intelligence test questions rest on argument by analogy, nor are they all verbal, nor are they invariably in multiple choice form:

(a) Which of the following words has the same meaning as the word on the left?
  Correct...neat, fair, right, poor, good.
(b) Which is the odd man out...dog, cat, horse, chicken, cow?
(c) Which number is missing from this series?...1, 2, 4, , 16.
(d) Add the smallest of these fractions to the second largest...
  7/8, 16/17, 1/6, 1/34, 3/5, 18/19.

Intelligence test questions may also be diagrammatical: Logical relations expressed in terms of patterns...Thus, even though the scope of the conventional intelligence test is not easily defined, it does seem that nearly every item in nearly every test does have one assumption in common: that each question has only one right answer. Consider now a typical question from a 'creativity' test:

> How many uses can you think of for a brick?

Here, the individual is invited to diverge, to think fluently and tangentially, without examining any one line of reasoning in detail. There are thousands of possible uses for a brick, and clearly people will differ widely both in the quantity and the quality of the uses they suggest. Here are two sets of answers: the first, it hardly needs saying, is more numerous, wittier and more ingenious than the second:

> (Brick) To break windows for robbery, to determine depth of wells, to use as ammunition, as pendulum, to practice carving, wall building,

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*From Contrary Imaginations; A Psychological Study of the English Schoolboy (Baltimore: Penguin Books, 1967), pp. 49-51, 55-59, 85, 109, 114, 159.

to demonstrate Archimedes' Principle, as part of abstract sculpture, cosh, ballast, weight for dropping things in river, etc., as a hammer, keep door open, footwiper, use as rubble for path filling, chock, weight on scale, to prop up wobbly table, paperweight, as firehearth, to block up rabbit hole.

(Brick) For building. For throwing through window.

* * *

...The insight afforded by these new tests is seen most clearly with Uses of Objects. This is a test which, on the face of it, favours the boy with mechanical interests and experience: the typical young physical scientist. Yet, on this test, impractical young historians and modern linguists do as well, or better than, the physical scientists. Consider the answers given by Bolton, a young modern linguist whose interests are in no sense mechanical or technical ('playing the clarinet, singing in choir; books - mainly foreign'):

(Barrel) Storing beer; sitting on; using as a raft; gnawing; loud-speaker holder; as musical instrument;
(Paper Clip) Holding paper together; wire; pin; tooth-pick; to undo and waste time; make darts; as a button; cleaning nails;
(Tin of Boot Polish) Cleaning shoes; making a mess all over the place; throw as a saucer; as an instrument (musical); to put pins in; make-up; ash-tray;
(Brick) Building; throwing; sitting on; head rest; making a fire out of doors; making a ladder; a cudgel; for using straw up.
(Blanket) Sleeping in; using to stifle burning; keep warm; lag pipes; round a camp fire; suffocating people; muffler and insulator for sound; for clothes;

And, by contrast, those of Poulter, an able young physical scientist of the same age and from the same school, whose interests are 'models, hand built railways, sport':

(Barrel) Container for liquids. Sitting on.
(Paper Clip) Clipping paper on when straightened as a bit of wire.
(Tin of Boot Polish) Cleaning shoes.
(Brick) Building houses, breaking windows, removing teeth (via the broken window).
(Blanket) Sleeping in.

Bolton is able to switch confidently from one theme to the next, and to include a number of suggestions which we might call libidinous ('suffocating people,' 'making a mess all over the place') along with others which are sensible and ingenious ('as a loud-speaker holder,' 'insulator for sound'). With one exception, Poulter's answers are impersonal and pedestrian. He does not let himself go, either in the amount of material he lets fall, or in the subject matter which he permits himself to cover.

The converger is the boy who is substantially better at the intelligence test than he is at the open-ended tests; the diverger is the reverse. In addition, there are the all-rounders, the boys who are more or less equally good (or bad) on both types of test...The reader will already have noted that the convergence/divergence dimension is a measure of bias, not of level, of ability.

* * *

An interesting implication of this finding about Uses of Objects is that it indicates some kind of barrier or gulf between thinking imaginatively about practical matters and making things work. It seems that the arts man is free to use his imagination just because he is not committed to being practical; while the scientist's practical commitment precludes his thinking about any use for an object other than the right, the most conventional one. The young scientist usually is intensely practical -- we know this; and most young arts specialists find engines, or any other manifestation of technology, alien. But what gives the one his skill and the other his aversion is not so much the ability to think practically as the commitment to (or avoidance of) practical action.

* * *

In many respects, the diverger is the converger's opposite. He flourishes on the open-ended tests which convergers dislike. He moves naturally towards the human aspects of his culture-literature, politics and shuns the technical and practical. He is liberal in his attitudes; and seems less prone than the converger to accept beliefs on trust, or to think in conventional terms. And, above all, he seems actively to enjoy the expression of his personal feelings; or, at least, to enjoy expressing his feelings about matters which are personal. Where the converger avoids personal discussion, the diverger positively seeks it out.

* * *

My own belief is that original work will come from convergers and divergers alike; and that the convergence and divergence of an individual will determine not whether he is original but, if he is original, the field and the style in which his originality will manifest itself.

* * *

Under what conditions could extreme convergers...be induced to produce forty suggestions for a blanket rather than just one? Could he do so with half an hour's practice, or half a term's? Would he do so for a financial reward: 10s. say, or 100 pounds? Would he do so when slightly intoxicated? Or only with an experimenter he thoroughly trusted? Similarly, with divergers. One would like to discover whether they can evaluate ideas that they produce. Also one wonders under what conditions they could be brought to enjoy convergent skills: mathematics, chess or logical puzzles? The project is an alluring one, and not solely for the light it would throw upon psychological theory. It opens a prospect of educational research designed specifically to overcome children's resistance to particular kinds of thinking. The results might eventually place teaching upon solid technical foundations, and, at the same time, create a psychology of intellectual types which was both empirical and relevant.

Note: In a later book, Frames of Mind (London: Methuen & Co. Ltd., 1968), Liam Hudson describes new studies that suggest various conditions under which convergent and divergent ways of thinking can be modified by the context of the test situation.

THE RIGHT HAND AND THE LEFT*

Jerome S. Bruner

Since childhood, I have been enchanted by the fact and the symbolism of the right hand and left -- the one the doer, the other the dreamer. The right is order and lawfulness, le droit. Its beauties are those of geometry and taut implication. Reaching for knowledge with the right hand is science. Yet to say only that much of science is to overlook one of its excitements, for the great hypotheses of science are gifts carried in the left hand.

Of the left hand we say that it is awkward and, while it has been proposed that art students can seduce their proper hand to more expressiveness by drawing first with the left, we nonetheless suspect this function. The French speak of the illegitimate descendant as being a main gauche, and, though the heart is virtually at the center of the thoracic cavity, we listen for it on the left. Sentiment, intuition, bastardy. And should we say that reaching for knowledge with the left hand is art? Again it is not enough, for as surely as the recital of a daydream differs from the well-wrought tale, there is a barrier between undisciplined fantasy and art. To climb the barrier requires a right hand adept at technique and artifice.

And so I have argued in one of the essays in this volume that the scientist and poet do not live at antipodes, and I urge in another that the artificial separation of the two modes of knowing cripples the contemporary intellectual as an effective mythmaker for his times. But it is not principally in the role of a would-be mediator between the humanist and the scientist that I have written and then rewritten the essays that comprise this book. My objective, rather, is somewhat different, perhaps more personal.

It is to explore the range of the left hand in dealing with the nature of knowing. As a right-handed psychologist, I have been diligent for fifteen years in the study of the cognitive processes: how we acquire, retain, and transform knowledge of the world in which each of us lives -- a world in part "outside" us, in part "inside." The tools I have used have been those of the scientific psychologist studying perception, memory, learning, thinking, and (like a child of my times) I have addressed my inquiries to the laboratory rat as well as to human beings. At times, indeed, I have adopted the role of the clinician and carried on therapy with children whose principal symptom presented at the clinic was a "learning block," an inability to acquire knowledge in a formal school setting, though their intelligence seemed normal or even superior. More recently, I have turned my attention to the nature of the teaching process in an effort to formulate the outlines of a "theory of instruction" and so better to understand what we seek to do when we guide another's learning either by a lecture or by that formidable thing known as a curriculum. Seeking the most beautifully simple case, I chose to study the learning and teaching of mathematics. But it was soon clear that the heart of mathematical learning was tipped well to the left...

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*Reprinted by permission of the publishers from On Knowing: Essays for the Left Hand (Cambridge, Mass.: The Belknap Press of Harvard University Press, Copyright 1962 by the President and Fellows of Harvard College), pp. 2-5.

One thing has become increasingly clear in pursuing the nature of knowing. It is that the conventional apparatus of the psychologist -- both his instrument of investigation and the conceptual tools he used in the interpretation of his data -- leaves one approach unexplored. It is an approach whose medium of exchange seems to be the metaphor paid out by the left hand. It is a way that grows happy hunches and "lucky" guesses, that is stirred into connective activity by the poet and the necromancer looking sidewise rather than directly. Their hunches and intuitions generate a grammar of their own--searching out connections, suggesting similarities, weaving ideas loosely in a trial web...

The psychologist, for all his apartness, is governed by the same constraints that shape the behavior of those whom he studies. He too searches widely and metaphorically for his hunches. He reads novels, looks at and even paints pictures, is struck by the power of myth, observes his fellow men intuitively and with wonder. In doing so, he acts only part time like a proper psychologist, racking up cases against the criteria derived from a hypothesis. Like his fellows, he observes the human scene with such sensibility as he can muster in the hope that his insight will be deepened. If he is lucky or if he has subtle psychological intuition, he will from time to time come up with hunches combinatorial products of his metaphoric activity. If he is not fearful of these products of his own subjectivity, he will go so far as to tame the metaphors that have produced the hunches, tame them in the sense of shifting them from the left hand to the right hand by rendering them into notions that can be tested. It is my impression from observing myself and my colleagues that the forging of metaphoric hunch into testable hypothesis goes on all the time.

DIFFERING VIEWS OF HUMAN VARIABILITY*

George W. Denemark

Let us next turn our attention to a clarification of the sense in which we are using the term "human variabilities." For purposes of this discussion the term has been given a very broad interpretation and will be used in three ways. We shall be considering human variabilities (a) in relation to the differences among or between members of a group, (b) in terms of the variability within a given individual in capacity and performance as these relate to a range of areas of experience, and (c) in terms of the variation in the demands upon or expectations of individuals because of their environment.

The first of these three interpretations of the term will help us to keep in mind the wide range of difference which exists among members of almost any school group. The second is intended to remind us of the fact that few if any of us are uniformly able or uniformly poor at everything but rather excel (or at least have the potential for excelling) in certain areas while performing less skillfully in others. The third, and perhaps most usual interpretation of the term, human variability, is intended to help us consider the variations in the demands which a society makes upon individual members as well as considering the differences in and among those individuals. The significance of this interpretation may be seen in the extent to which societal values support human variability or support standardization and conformity. The crucial question is whether the society and its institutions look upon differences in and among individuals as a source of strength, as something to be nurtured and cultivated, or as a source of weakness and needless complication, something to be tolerated and minimized. Depending upon the choice of values made here, human variability may be viewed either as a blessing or a curse, a vexing problem or a wonderful resource.

Some educators see their task as standardization, as the development by the school of a uniform product. To them human variability represents a problem, something schools must struggle with and eliminate as far as possible in order that all of the students can be fitted into a neat, manageable framework for learning that corresponds with the existing organization and structure of society. There is, of course, an element of inevitability about this function of the schools, for it is true that the very definition of a society incorporates the requirement of shared belief, of a core of behaviors and values common to its members. Without continuing efforts to enlarge the circle of common commitment through schools and other social institutions, our communities would quickly become merely aggregations of individuals.

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*From "Human Variability and Learning: Implications for Education," Human Variability and Learning, Walter B. Waetjen, ed. (Washington: Association for Supervision and Curriculum Development, 1961), pp. 4-5.

Other educators, concerned primarily with helping students adapt to a rapidly changing and increasingly complex world, perceive variability as a tremendous resource. To be sure this human potential is not without problems, but the problems are those of utilizing variability most effectively and extending variation within and among individuals rather than trying to eliminate it. Thus we may note two ways of looking at the facts of human variability: as the source of problems which one should seek to eliminate, and as an important resource which should be utilized most effectively. The school curriculum and the methods of instruction will differ markedly according to which of these views is held by teachers and administrators.

Seminar 19: Why Bother with Conceptual Structure?

> We may take as perhaps the most general objective of education that it cultivate excellence; but it should be clear in what sense this phrase is used. It here refers not only to schooling the better student but also to helping each student achieve his optimum intellectual development. Good teaching that emphasizes the structure of a subject is probably even more valuable for the less able student than for the gifted one, for it is the former rather than the latter who is most easily thrown off the track by poor teaching. This is not to say that the pace or the content on courses need be identical for all students...
>
> One thing seems clear: if all students are helped to the full utilization of their intellectual powers, we will have a better chance of surviving as a democracy in an age of enormous technological and social complexity.
>
> -- Jerome S. Bruner, The Process of Education

The conceptual structure of a curriculum consists of the organizing ideas or concepts, the ways the concepts are related, and the methods employed in exploring these relationships. In this seminar, the conceptual structure of Man: A Course of Study is reviewed. Participants discuss the power of the organizing ideas (e.g., life cycle, adaptation, learning, culture, technology, social organization, world view) and focus on the value of these organizing ideas for the exploring of our own culture.

Complete set of Man: A Course of Study student and teacher materials
several packs of 3 x 5 cards
several blank notebooks
paste and scissors
crayons
at least ten popular magazines
anthology of poetry for children
anthology of short stories for children

Tape: "Man: A Course of Study," Jerome Bruner

Readings: excerpts from Process of Education, Chapter 2

SEMINAR 19

1. Listen to the tape in which Bruner describes the goals of the course to its first trial teachers in 1966. While listening, note the concepts your students use easily in organizing learning and the concepts that are more difficult. Discuss which materials and exercises succeed in clarifying the conceptual structure and which fail.

2. Bruner states his aim of exploring man's human qualities:

> ...to deal, in short, with the great humanizing forces in man's life. We wanted to do this in such a way that a child would be able to appreciate some of the things in the everyday life around him which would be hard for him to grasp in their full complexity.

The major task of this seminar is to prepare contemporary American materials designed in the spirit of the course. Using the Netsilik materials as models, design such items as:

- a poetry book
- a book of American beliefs
- stories about American children
- a "surviving in the American economy" game
- American cards (similar to Eskimo Cards)
- a collection of observations about life in America made by a visitor from another country
- a taped collection of music
- an American data book
- concept book(s) on culture

3. Allow one-half hour at the end of the seminar to share productions. Some may be finished while others are designed but not executed. Discuss how the Netsilik materials served as a model for creating the American materials.

Which are more apparent: the differences or the similarities between the two sets of materials? Why?
What do the differences between the American and Netsilik materials tell us about the differences between the two societies?
Did the organizing ideas consciously determine your approach to this problem, or did they seem to underlie your thinking?
Do the organizing ideas used in studying the Netsilik Eskimos have to be extended to be useful in understanding a complex society? For example, do concepts such as adaptation and political leadership have to be expanded to encompass the scope of American society?
How will the course provide a foundation for studying your new American materials? Which concepts, data, modes of inquiry are especially helpful in looking at our own society?

THE IMPORTANCE OF STRUCTURE*

Jerome S. Bruner

The first object of any act of learning, over and beyond the pleasure it may give, is that it should serve us in the future. Learning should not only take us somewhere; it should allow us later to go further more easily. There are two ways in which learning serves the future. One is through its specific applicability to tasks that are highly similar to those we originally learned to perform. Psychologists refer to this phenomenon as specific transfer of training; perhaps it should be called the extension of habits or associations. Its utility appears to be limited in the main to what we usually speak of as skills. Having learned how to hammer nails, we are better able later to learn how to hammer tacks or chip wood. Learning in school undoubtedly creates skills of a kind that transfers to activities encountered later, either in school or after. A second way in which earlier learning renders later performance more efficient is through what is conveniently called nonspecific transfer or, more accurately, the transfer of principles and attitudes. In essence, it consists of learning initially not a skill but a general idea, which can then be used as a basis for recognizing subsequent problems as special cases of the idea originally mastered. This type of transfer is at the heart of the educational process -- the continual broadening and deepening of knowledge in terms of basic and general ideas.

The continuity of learning that is produced by the second type of transfer, transfer of principles, is dependent upon mastery of the structure of the subject matter...That is to say, in order for a person to be able to recognize the applicability or inapplicability of an idea to a new situation and to broaden his learning thereby, he must have clearly in mind the general nature of the phenomenon with which he is dealing. The more fundamental or basic is the idea he has learned, almost by definition, the greater will be its breadth of applicability to new problems. Indeed, this is almost a tautology, for what is meant by "fundamental" in this sense is precisely that an idea has wide as well as powerful applicability.

There is at least one major matter that is left unsettled even by a large-scale revision of curricula in the direction indicated. Mastery of the fundamental ideas of a field involves not only the grasping of general principles, but also the development of an attitude toward learning and inquiry, toward guessing and hunches, toward the possibility of solving problems on one's own. Just as a physicist has certain attitudes about the ultimate orderliness of nature and a conviction that order can be discovered, so a young physics student needs some working version of these attitudes if he is to organize his learning in such a way as to make what

*Reprinted by permission of the publishers from The Process of Education (Cambridge, Mass.: Harvard University Press, Copyright 1960 by the President and Fellows of Harvard College), pp. 17-18, 20, 31-32.

he learns usable and meaningful in his thinking. To instill such attitudes by teaching requires something more than the mere presentation of fundamental ideas.

To recapitulate, the main theme of this chapter has been that the curriculum of a subject should be determined by the most fundamental understanding that can be achieved of the underlying principles that give structure to that subject. Teaching specific topics or skills without making clear their context in the broader fundamental structure of a field of knowledge is uneconomical in several deep senses. In the first place, such teaching makes it exceedingly difficult for the student to generalize from what he has learned to what he will encounter later. In the second place, learning that has fallen short of a grasp of general principles has little reward in terms of intellectual excitement. The best way to create interest in a subject is to render it worth knowing, which means to make the knowledge gained usable in one's thinking beyond the situation in which the learning has occurred. Third, knowledge one has acquired without sufficient structure to tie it together is knowledge that is likely to be forgotten. An unconnected set of facts has a pitiable short half-life in memory. Organizing facts in terms of principles and ideas from which they may be inferred is the only known way of reducing the quick rate of loss of human memory.

Seminar 20: Education as a Continuing Human Invention

Human beings invented the process of education. Animals learn, of course, but only humans deliberately teach skills, values and a world view to their young.

Although seminar topics were varied, each one foucsed on two uniquely human processes -- symbolic learning and education. This last seminar looks at education, both in and out of school, as an invention that requires constant change if it is to prepare the young to live with skill, compassion and humor in a world that does not yet exist.

Filmstrips:	**"The Netsilik Today"** **"Netsilik Life"**
Teachers' Guides:	**The Netsilik Eskimos at the Inland Camps** **The Netsilik Eskimos on the Sea Ice** **Talks to Teachers, "The Changing Lives of Canada's Eskimos"**
Booklet:	**The Observer's Handbook**
Readings:	**Joseph Grannis, "The School as a Model of Society"** **Jerome S. Bruner, "Education as a Continuing Human Invention"**

1. Review "The Changing Lives of Canada's Eskimos," focusing on the contrast between the education of Netsilik children in traditional times and in the present.

   View frames 5, 6, 7, 8, 9, 11 of filmstrip "Netsilik Life" (notes on pages 89-90, 93 of The Netsilik Eskimos at the Inland Camps).

   What qualities did Netsilik parents try to engender in their children?
   In what ways did daily life in Netsilik families and the larger community provide education for children?

   View filmstrip "The Netsilik Today" (notes on pages 87-88 of The Netsilik Eskimos on the Sea Ice).

How does "school" change Netsilik education?
What are the greatest difficulties for students and parents?
What curriculum would best prepare today's Netsilik children for their futures?
What problems have occured in our society when children from other cultures come in contact with the behavior and values of American schools?

2. The seminars have examined education in both traditional and contemporary society. In "Education as a Continuing Human Invention," Jerome Bruner discusses society in the future and suggests three forms of human activity that education ought to encourage.

    Did the reading provide new insights into the benefits and disadvantages of substituting apprenticeship for high school?
    Which material or activity in the course most encouraged children in (1) research and development, (2) unpredictable services, or (3) the arts? In which of these three areas did the course succeed the most? Which is the most important?

3. Using the materials and concepts of Man: A Course of Study, the seminars examined the process of learning. Does the exploration of learning and teaching help you in:

    -answering the question, "What is human about human beings?"
    -understanding your own ways of thinking?
    -understanding students' learning styles?
    -teaching other curricular areas?
    -planning next year's teaching of Man: A Course of Study?
    -critiquing the seminar series itself?

4. Review "The School as a Model of Society" and consider what kinds of school would encourage the most "human" learning and shape the critical activities necessary in the future.

    Which model is most like your own school?
    How does the institution of school shape your students' learning?

    Small groups design a school, keeping in mind questions raised under headings "Subjects," "Teachers," "Students," "Rules," "Schedules and Classrooms," "Plan-a-day" on pages 25-28 of The Observer's Handbook.

    What changes can you make in your won teaching situation to "humanize" education for both you and your students?

THE SCHOOL AS A MODEL OF SOCIETY*

Joseph C. Grannis

Every school represents to its students a model of society and its possibilities. In the very composition of the students and teachers, in the authority and decision-making structure of the school, in the ways that people talk with one another, and in the expectations the school holds for its students -- in all these ways, and more, the school instructs about society.

We are accustomed to thinking of content as the most important learning a school conveys to its students. It is the structure of the school, however, that instructs most systematically, and it is this structure that the students respond to first and remember longest.

In this essay we shall look at the schools of the nation today in terms of several different models of society that they present to their students. Each of these models is an ideal type, and no single model may fully describe a single school. It will be necessary to think of the schools in terms of different combinations of the models. We shall have to weigh the adequacy of these models for the schools today, and shall then have to examine society to uncover new possibilities for the schools.

* * *

Three models will serve to describe a great deal of what we can see now in the schools. A "family" model can be most readily associated with preschools and with the primary grades of certain private schools that had their origins in the progressive era. A second model, the "factory" school, is the most prevalent type in the elementary and secondary schools of the nation today. It originated principally in the cities, in the late nineteenth and early twentieth centuries, for the primary purpose of inducting immigrant and rural youth into the working-class life of the industrial system of the times, and secondarily for initiating some youth into the ways of American middle-class life of these times. A third model, the "corporation" school, has been developing most rapidly in the schools of the suburbs during just the last ten years or so. Its primary function seems to be the induction of youth into certain of the ways of a modern, bureaucratically organized society.

Team teaching and nongraded patterns of organization characterize the corporation school, while rigidly graded and horizontally segmented patterns characterize the factory school. These, however, are only the more manifest structural features by which these schools can be identified. Underlying them are significant differences in the attitudes of the schools toward education, toward the work and lives of the students and the teachers in school, and toward life in society itself.

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*Excerpts from an article of the same title in Harvard Graduate School of Education Bulletin, Fall, 1967, pages 15ff.

* * *

John Dewey stated most explicitly the idea of the family school as it was developed by the progressives. The model of school that Dewey promulgated in The School and Society still governs the conduct of some schools today:

> If we take an example from an ideal home, where the parent is intelligent enough to recognize what is best for the child, and is able to supply what is needed, we find the child learning through the social converse and constitution of the family. There are certain points of interest and value to him in the conversation carried on: statements are made, inquiries arise, topics are discussed, and the child continually learns. He states his experiences, his misconceptions are corrected. Again the child participates in the household occupations, and thereby gets habits of industry, order, and regard for the rights and ideas of others, and the fundamental habit of subordinating his activities to the general interest of the household...in relation to this living...(The School and Society. Chicago: Phoenix, 1963, 34-36)

Our terming this a family model emphasizes the intimate manner of the children's learning with and from each other, and the teacher's nuturing role as one who shares with the children certain interests and occupations, who provides materials and settings for the children's growth, and who facilitiates the children's solving of problems that develop essentially out of their own life in the environment created for them.

* * *

The family school so construed does not correspond in important ways to life in the family as we know it today. It represents a family where the occupations of the adults were carried on in the home, and where the children witnessed and participated in the production of all life's necessities.

* * *

THE "FACTORY" SCHOOL

Students in a factory school classroom are generally found working on identical material at a uniform pace. Identical grading standards are presumed to be applied to all the students, though in practice there are great discrepancies in their application to different students, or in their application to different performances by one and the same student on various occasions. Much of the work is assign and recite, and the pattern of dialogue is often rote teaching. Students in the factory school do not get to see the teacher "do things" that matter to the teacher himself, except teach, nor do they see the teacher working on his own questions.

...the students in the factory school learn to think in terms of a crude standardization of products, effort, and reward, and at the same time to expect a certain arbitrariness of the standards by which their work is to be done and judged. They learn to expect the failure of many individuals to meet these standards. Finally, they learn the necessity of repetition, or, eventually, out-and-out withdrawal from the production line when individuals fail to meet the standards that have been laid down for them.

Competition is encouraged among the students in the factory school. However, it is a limited form of competition compared with that which is most likely to be functional in work and society today. The factory school does not foster individual initiative and quality of work, but stresses instead a competition in sheer quantity and rate of production--the best rate being that which is neither too fast nor too slow for the line.

* * *

A punitive authority pervades the factory school, emanating from the principal's office and delegated to the teachers. In the mix of the factory and the family models, this authority of the school is paternalistic. Certain students are depended on to set the pace and exemplify the standards set down for the group. Often the teachers delegate some of their own authority to these students, and certain students emerge from the ranks to become more identified with their bosses, the teachers. Sometimes, however, the students reject the system. They sit in sullen silence, or they range themselves against the teachers and the school and bring the works to a futile halt.

* * *

THE "CORPORATION" SCHOOL

The full-fledged corporation school includes both team teaching and nongraded characteristics. In practice, however, these are not always joined together and may be combined with features of other models.

* * *

While team teaching alone does not necessarily recognize the different interests and capacities of the students, it does do so when combined with a vertically nongraded scheme. This is especially true if the scheme does not simply locate the students along various straight-line continua, but allows them to diverge and to concentrate more in one area of study or another. The corporation school tends to develop an elaborately differentiated scheme for evaluating and reporting students' progress, and it often involves the students themselves in evaluation of their progress. It sets up contracts with individual students for their work. Students and teachers are grouped in numerous ways for various purposes, and complex schedules evolve to allocate the time and resources of the school.

Materials of instruction too are much more specialized than in the factory school, many of them being created by the teachers themselves for specific occasions...

It is not merely availability of these resources that leads to their use in the corporation school. The whole attitude of the school is oriented toward planning and rationalization and toward the employment of specialized skills and technology.

* * *

There is a highly differentiated hierarchy in the corporation school. The principal, team teachers, regular teachers, and teacher aides all stand above the students, and the authority to make decisions is distributed systematically throughout the hierarchy.

* * *

It is striking that in some corporation schools the students have even less control over their activities than in the factory school, where the teacher makes so many decisions spontaneously, and the pupils learn to manipulate, if only by sabotage, the teacher's propensities to their advantage. A couple of factors work against the students' control in the corporation school. The most obvious is that the coordination of a team's various activities and resources may impose more rigid time constraints on the classes than is the case within the self-contained classroom, at least in the elementary school; thus a group cannot so easily persevere in something that is especially rewarding, or break off from an activity they dislike. A second factor is the rationalization of instruction. The teachers may do so much detailed planning collectively that very few decisions are left to be contingent on the immediate circumstances of the ensuing activities. A similar observation can be made about the programmed materials used in the school.

* * *

The feeling relationships between individuals in the corporation school are more detached than in the factory school, again at least at the elementary level, and certainly more detached than in the family school. In the factory school, the different individuals do everything in common, whereas in the corporation school there are many more limited-purpose associations. A class in the factory school tends to develop a relatively stable social system, while the system in the corporation school is very fluid. In the one, a class has "good" students and "bad," trouble-makers, teachers' pets, all in all a familiar backdrop of individuals against which a given student measures himself. The class develops a history of happenings with each of the teachers who has succeeded or failed in molding it to his special inclinations. In the corporation school the students, who are placed in a variety of groups, are constantly reevaluated in different settings, and the groups to which they belong are more diffusely associated with the team or the institution as a whole.

* * *

In all of its characteristics the development of the corporation school parallels the trend in many of our social institutions today, from the more entrepreneurial to more bureaucratic forms of organization. This underlines all the more the import of our questions about the students' control and feelings in the school, for these are questions that are raised by the life of the individual in modern society generally. The corporation school represents to its students a society in which there is greater interdepence, in which there is greater specialization of individuals' tasks and functions, and in which technology and institutionalized processes of change and innovation play a greater part than in the societies of the past.

* * *

When we ask which of our three models of school is most effective in raising students' performance on standard achievement tests, the answer seems to extraordinarily simple. At least in the present stage of knowledge about teaching, none of the models is superior to the others.

* * *

Underlying our debates about teaching are fundamental questions about life and society itself and how the schools should construe the lives of their students and teachers. We think the issues posed by the different models are important and valid, but we want to argue that none of the models is adequate for schools today.

* * *

SOCIETY AS A MODEL FOR SCHOOLS

Individuals find meaning and control in modern life, as in the life of any society, by participating in its social institutions--political, economic, artistic, nurturing, and so on--or by rebelling against institutions that they understand are stupid or inequitable...

There are two broad implications of this kind of thinking. One is that we must systematically examine the society's institutions for the ways that youth and the schools can participate in them. The second is that the whole question of the commutity's control of the school should be conceived of in terms of a plurality of communities of interest, each having relatively greater control over that part of the school's program which it is competent to, and cares to, participate in.

EDUCATION AS A CONTINUING HUMAN INVENTION*

Jerome S. Bruner

The change in the instruction of children in more complex societies is two-fold. First of all, there is knowledge and skill in the culture far in excess of what any one individual knows. And so, increasingly, there develops an economical technique of instructing the young based heavily on telling out of context rather than showing in context. In literate societies, the practice becomes institutionalized in the school or the "teacher." Both promote this necessarily abstract way of instructing the young...It takes learning, as we have noted, out of the context of immediate action just by kind of putting it into a school. This very extirpation makes learning become an act in itself, freed from the immediate ends of action, preparing the learner for the chain of reckoning, remote from payoff that is needed for the formulation of complex ideas. At the same time, the school (if successful) frees the child from the pace-setting of the round of concrete daily activity. If the school succeeds in avoiding a pace-setting round of its own, it may be one of the great agents for promoting reflectiveness...

* * *

As a society becomes yet more technical, there is a longer separation from actual doing, and education begins to take up a larger and larger portion of the life span; indeed, education becomes part of the way of life. More and more time is given over to telling (usually in print), to demonstrating out of the context of action.

We can already foresee a next step in technical progress that will impose further changes on our methods of educating. For one thing, the rate of change in the surface properties of knowledge will likely increase...In teaching, then, we shall be more likely to search out the deeper, underlying ideas to teach, rather than presenting the technical surface that is so likely to change. A metaphoric way of putting this is to say that technical things are more likely to appear changed to an engineer than to a physicist.

* * *

I suspect that there are three forms of activity that no device is ever going to be able to do as well as our brain with its 5×10^9 cortical connections, and I would suggest that these three represent what will be special about education for the future.

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*From "Culture, Politics, and Pedagogy," Saturday Review, May 8, 1968, pp. 70-71, 72.

The first is that we shall probably want to train individuals not for the performance of routine activities that can be done with great skill and precision by devices, but rather to train their individual talents for research and development, which is one of the kinds of activities for which you cannot easily program computers. Here I mean research and development in the sense of problem-finding rather than problem-solving. If we want to look ahead to what is special about a school, we should ask how to train generations of children to find problems, to look for them.

* * *

A second special requirement for education in the future is that it provide training in the performance of "unpredictable services." By unpredictable services, I mean performing acts that are contingent on a response made by somebody or something to your prior act. Again this falls in the category of tasks that we shall do better than automata for many years to come. I include here the role of the teacher, the parent, the assistant, the stimulator, the rehabilitator, the physician in the great sense of that term, the friend, the range of things that increase the richness of individual response to other individuals. I propose this as a critical task, for as the society becomes more interdependent, more geared to technological requirements, it is crucial that it not become alienated internally, flat emotionally, and gray. Those who fret and argue that we are bound to go dead personally as we become proficient technically have no more basis for their assertion than traditional romanticism. Recall that the nineteenth century that witnessed the birth of the Industrial Revolution also produced that most intimate form, the modern novel.

Third, what human beings can produce and no device can is art -- in every form: visual art, the art of cooking, the art of love, the art of walking, the art of address, going beyond adaptive necessity to find expression for human flair.

These three -- research and development, unpredictable services, and the arts -- represent what surely will be the challenge to a society which has our capacity to provide technical routine. I assume we shall teach the technical routines, for that is built into our evolving system. Will we be daring enough to go beyond to the cultivation of the uniquely human?

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